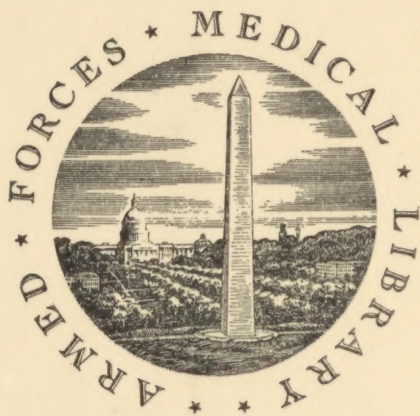


UNITED STATES OF AMERICA



FOUNDED 1836

WASHINGTON, D.C.



*Humanam AMBROSII vere hæc pittura PARÆI
Effigiem sed Opus continet Ambrosianum.*

THE
WORKES
of that famous
Chirurgion
Ambrose Parey
Translated out of
Latine and compared
with the French.

W. Th. Gornson.

*Nefallare vide, ne quæ sunt parva salutis.
Perdat in exitum, non solum cura medantis.*

London
Printed by Th. Cotes
and R. Young
Anno 1634.



1944



TO
THE RIGHT
HONOURABLE
SIR EDWARD HERBERT,

KNIGHT OF THE BATH,

Lord Herbert of Castlelland,

and Baron of Cherbury.

SIR,



It is not the farre-fetcht pedegree of noble Ancestors, nor those Honours your Lordship deservedly possesse, that make mee crave your Patronage to this my Labour; but it is that Heroick minde, enriched with the choice endowments of Nature and Art, and that earnest affection wherewith your Honour entertaines all Sciences, Arts, and Artists, with that exquisite Judgment which sees into the inner man, which embolden and incite me to sue for your Honours assistance, in protecting the fame of him, who by your many favours is made yours. I know the seeming and selfe-pleasing Wisedome of our times, consists much in cavilling, and unjustly carping at all things that see light, and that there are many who earnestly hunt after the publike fame of Learning and Judgement, by this easily trod, and despicable path, which notwithstanding they tread with as much confidence as folly; for that oft-times which they vainely and unjustly brand with opprobrie, out-lives their Fate, and flourisheth when it is forgot that ever any such as they had being.

I know your Lordships disposition to be farre dissenting from those men, and that you rather endeavour to build up the fame of your learning and Judgement upon a strong laid foundation of your owne, than *Herostatus* like, by pulling downe any howsoever faire built fabricke of another. I heartily wish that your Honour could propagate this good, and that all Detractors might be turned into Actors, and then I know it would much mitigate their rigour in censuring others,
C when

The Epistle Dedicatory.

when as they themselves were also exposed unto the same Hazard.

I thinke it impertinent to acquaint your Honour with the Nature of the Worke, my Paines in translating, or the Benefit that may ensue thereon, for that I know your Honour ignorant of nothing in this kind; neither doubt I of your favourable acceptance of the good-will of him, that thinkes himselfe much honoured by being

Yours,

THOMAS JOHNSON.



To The Reader,

I Have here for the publike good taken paines to subject my selfe to common censure, the which I doubt not but to finde as various as the faces of the Censurers; but I expect no thanks, nor hunt after other praise, than that I have laboured for my Countries good, if that deserve any. I feare not Calumniation (though sure to heare of it) and therefore I will not Apologize, but informe thee of some things concerning the Author his work, and the reason that induced me to the translation thereof, with some few things besides. For the Author, who was principall Surgeon to two or three Kings of France, hee was a man well versed in the writings of the antient and moderne Physitians, and Surgeons, as you may evidently finde by sundry places alledged in his workes. For his experience, or practice (the chiefe helpe to attaine the highest perfection in this Art) it was wonderfull great, as you may collect by his voyages recorded in the last part of this work; as also by that which *James Guillemeau*, Surgeon to the French King, a man both learned and judicious in his profession, averres, speaking of his owne education and progresse in the Art of Surgery. I so laid (*saith hee) the first foundation of this Art in the Hospitall of *Paris*, being, as it were, an ample Theater of wounds and diseases of all kindes, that for two whole yeares, during which time I was there conversant, nothing was consulted of, nothing performed, the Physitians, and Surgeons being present, whereof I was not an Auditor or Actor. There flourished at these times, and yet doth, *Ambrose Parey*, principall Surgeon to the most Christian King, the Author of this great worke, most renowned for the gracious favour of Kings, Princes and Nobles towards him, for his Authoritie amongst his equals, for his Chirurgical operations amongst all men. Therefore I earnestly endeavoured to be received into his family, as unto another *Machaon*, or *Podalirius*: once admitted, I so by all dutifullnesse and due respect acquired his favour, that he, unlesse I were present and assisting, did nothing (such is his naturall gentleness and curtesie to all such as are studious of the Art) at home or abroad, in the field, in the tents, or lastly in this famous Citie of *Paris*, about the bodies of Dukes, Noblemen, or Citizens, in whose cure, he by the ardent desire of them all, had still the prime place.

*In his Epistle prefixed before the Latine edition of this Author.

Now for this worke, heare what this same man in the same place affirmeth further: I not content with these meanes, which may seeme sufficient, and too much, as desirous to satisfie my long thirst, determined to try whether I could draw, or borrow any thing from strangers, which our men wanted, to the fuller knowledge of Surgery. To this purpose I travailed over Germany, and then for foure years space I followed the Spanish Armie in the Low-countries; whereas I did not onely carefully cure the wounded Souldier, but also heedfully and curiously observe what way of curing the renowned Italian, Germane, and Spanish Surgeons observed, who together with me were imployed in the Hospitall, for the healing of the wounded and sicke. I observed them all to take no other course than that which is here delivered by *Parey*. Such as did not understand French, got some pieces of this worke for large rewards, turned into Latine, or such Languages as they understood, which they kept charily, and made great store of; and they esteemed, admired, and embraced this worke alone, above all other workes of Surgery, &c. Our Author also himselfe, not out of a vain-glorious ostentation, but a minde conscious of the truth of his assertion, affirms thus much of this his worke. I have (saith hee) so certainly toucht the marke whereat I aimed, that Antiquity may seeme to have nothing wherein it may exceed us, besides the glory of invention, nor posterity any thing left, but a certaine small hope to adde some things, as it is easie to adde to former inventions. Thus much concerning our Authour, and the excellency of his worke.

Now come I to my translation, the which, as desiring more a publike good, than private praise, I have performed plainly and honestly, laboring to fit it to the capacity of the meanest Artift; for these are they to whom I chiefly commend this work, and from whom I expect acceptance. I being by the earnest perswasions of some of this profession, chiefly, and almost

To the Reader.

most wholly perswaded and incited to take this paines, who knowing the disability of understanding this Author in Latine or French, in many of the weaker members of the large body of their profession, dispersed over this Kingdome, and the rest of his Majesties Dominions, whose good, and encrease in knowledge may be wisht, that so they may be the better enabled to doe good to such as shall implore their aide in their profession.

There are some (I know) will blame me for Englishing this worke, as laying open the mysteries of a worthy Art, to the unworthy view of the vulgar. To such I could answer as * *Aristotle* did to *Alexander*: but for the present I will give them these, which I thinke may satisfie any but the purposely malicious: the first is drawne from the goodnesse of the thing, as intended for those that want such guides to direct them in their Art; for it is commonly granted, that, *Bonum quo communius eo melius*. Secondly, it hath beene the custome of most Writers in all Ages and Countries thus to doe: *Hippocrates*, *Galen*, and the other Greeks, writ in their mother tongue the mysteries of their Art: thus did *Celsus*, *Serenus*, and others in Latine: *Mesue*, *Avicen*, *Serapio*, and others, in Arabicke; as also, to goe no further, our Author writ this worke in his native French, and learned men have done the like in this, and all other Arts. And it is a great hinderance to us in these daies, that we must bee forced to learne to understand two or three tongues, before wee can learne any science, whereas the Antients learned and taught theirs in their mother tongue: so that they spent a great deale lesse time about words, and more upon the study of that Art or Science they intended to learne and follow. Thirdly, I must tell you, that, *Ex libris nemo evasit Artifex*, No man becomes a workeman by booke: so that unlesse they have had some insight in the Art, and be in some sort acquainted both with the termes of Art, as also with the knowledge and use of the instruments theretobelonging, if by reading this, or any other booke of the like nature they become Surgeons, I must needs liken them (as *Galen* doth another sort of men) * To Pilots by booke onely: to whose care, I thinke, none of us would commit his safety at Sea, nor any if wise, will commit themselves to these at land, or sea either, unlesse wholly destitute of other.

The other things whereof I must also give you notice, are these. The figures in the Anatomy are not the same used by my Author (whose were according to those of *Vesalins*) but according to those of *Bauline*, which were used in the worke of Dr. *Crooke*; and these indeed are the better and more complete. Also Page 807. I thought it better to give the true figure of the Helmet floured Aconite, mentioned out of *Pliny*, than to reserve the faiged picture of *Matthiolus*, which in our Author was encreased with the further fiction of a Helmet. I have in some few places in the margent, which you shall find marked with a star, put short annotations, for the better illustration of that which is obscure, &c. I have also in the Text to the same purpose, here and there put two or three words, contained in these limits [], which I finde here and there turned into a plaine Parenthesis, especially toward the latter end of the booke, but the matter is not great. Further, I must acquaint you that the Apologie and Voyages, being the last part of this worke, and not in the Latine, but French editions, were translated into English out of French by *George Baker*, a Surgeon of this City, since that time, as I heare, dead beyond the Seas.

This is all, Courteous Reader, that I have thought necessary to acquaint thee withall concerning this, which I would desire thee to take with the same minde that it is presented to thee, by him that wisheth thee all happinesse,

THOMAS JOHNSON.



THE
A V T H O R S
EPISTLE DEDICATORIE
To Henry the third, the most Christian
King of France and Poland.



Even as (most Christian King) we see the members of man's body by a friendly consent are alwayes busied, and stand ready to performe those functions for which they are appointed by nature, for the preservation of the whole, of which they are parts: so it is convenient that we, which are, as it were, Citizens of this earthly Common-Weale should be diligent in the following of that calling which (by Gods appointment) we have once taken upon us: and content with our present estate, not cowed away with rashness and envy, desire different and divers things whereof we have no knowledge. He which doth otherwise, perverts and defile the sacred confusion the order and beauty on which this Universe consisteth. Wherefore when I considered with my selfe, that I was a member of this great Mundane body, and that not altogether unprofitable, I endeavored earnestly, that all men should be acquainted with my doings, and that it might be knowne how much I could profit thereby. For God is my witness, and all good men know that I have now labored fifty Yeares with all care and paines in the illustration and amplification of Chirurgery, and that I have so certainly touched the mark whereat I aimed, that Antiquity may seeme to have nothing wherein it may exceed us, beside the glory of invention, nor posterity any thing left but a certaine small hope to adde some things, as it becometh to adde to former inventions. In performance whereof, I have beene so prodigall of my selfe, my watchings, faculties and meanes, that I spared neither time, labour, nor cost, whereby I might satisfie and accomplish my own desires, this my great work, and the desires of the studious. Neither may we doubt but their studies would at the length waxe cold if they only furnished with the Theoricke and Precepts of Schooles, and that with much labour should see no manuell operation, nor manifest way of performing the Arts For which cause I seeking the praise and profit of the French Nation, even with the hinderance of my particular estate, have endeavored to illustrate and increase Chirurgerie hitherto obscure either by the infelicity of the

The Authors Epistle Dedicatory.

former ages or the envy of the Professors; and not onely with precepts and rules, but being a lover of carved workes I beautified it with good formes, or graven figures and apt delinuations, in which whosoever shall attentively looke shall finde five hundred anatomicall, or organicall figures belonging to the Arte, (if they be reckoned particularly). To every of these I have given their names and shewed their use, least they should seeme to have beene put in vainly for ostentation or delight. But although there be few men of this profession which can bring so much authority to their writings either with reason, or experience as I can; notwithstanding I have not beene so arrogant, but intending to publish my worke, I first communicated it with men the most excellent in the Arte of Physicke, who gave me greater encouragement to perfect and publish it, that it might be in common use: professing they wished nothing more, than that it might be turned into Latine, so by which means it should be knowne to forraigne Nations, that there is no kind of Learning which is not delivered with great dexterity of wit in this kingdome over which you rule. And thus much I dare boldly affirme, that there is scarce any, be he never so stately or supercilious, but that he may here find something which may delight him, and by which he may better his knowledge. Therefore I doubted not to consecrate this booke unto your Majestie both as a Patterne and treasury of my labours as well in respect of my duty, who am yours by nature and education, as that I might manifest to all, your Highnes exceeding bounty towards me, in placing me (having heretofore enjoyed the office of principall Chirurgion under 3 Kings your Majesties predecessors) in the same dignity, and that of your owne accord. And moreover I did conjecture that it would fall out, as now it doth, that this my worke caried through the world by the fame of your Majestie name, should neither seare the face nor veile of any, supported by the favour and Majestie of a most invincible Monarch and most excellent and renowned Prince. Neither did King Charles the ninth of happy memory, incited by the relation of the most gracious Queene his Mother, refuse to reade it, being he understood it proceeded from him, who having happily passed all his time in private and publick employments, and conversed with all men of all sorts, was judged most worthy to obtaine this favour, as to have the front of this worke adorned and beautified with the splendor of his prefixed name. I encouraged by this hope, desired that my request should passe as by a certaine continuation and succession from a most powerfull, to a most invincible King; and doe wholly consecrate these my labours taken for my Countreyes good unto your sacred Majestie. God grant that your Majestie may have happy successe of all your enterprises abundantly added to Nestors yeares.

Paris. 8. Feb. Anno Dom. 1579.

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Your most Christian Majesties
faithfull Servant

Andrese Parcy.



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Most men derive the Original of Physicke from heaven; for those who hold the best opinion of the Creation of the world, affirme, the Elements being created and separated each from other, man being not as yet made; incontinently by the divine decree, all herbes and plants with infinite variety of floures, endewed with various sents, tastes, colours and formes, grew and sprung forth of the bowells of the Earth, enriched with so many and great vertues, that it may be thought a great offence to attribute to any other than the Deity, the benefit of so great a blessing so necessary for so many uses. Neither could Mans Capacity ever have attained to the knowledge of those things without the guidance of the divine power. For God the great Creator & fashioneer of the world, when first he inspired *Adam* by the breath of his mouth into a living and breathing man, he taught him the nature, the proper operations, faculties and vertues of all things contained in the circuit of this Vniuerse. So that if there be any who would ascribe the glory of this invention to man, he is condemned of ingratitude even by the judgment of *Pliny*. But this knowledge was not buried in oblivion with *Adam*: but by the same gift of God was given to those whom he had chosen and ordained for Physicke, to put their helping hands to others that stood in need thereof. Which opinion was not only received in the common manner and by the tacite consent of all Nations, but confirmed by *Moses* in the Scripture. Which thing *Iesus* the sonne of *Sirach* the wisest amongst the Iewes, hath confirmed saying; Honor the Physition with the bonnor due unto him, for the most High hath created him because of necessity: and of the Lord commeth the gift of healing. The Lord hath created Medicines of the Earth and he that is wise will not abhorre them. Give place and bonnor to the Physition, for God hath created him, let him not goe from thee, for thou hast need of him. The *Gracians* who first seeme more fully and with greater fame to have professed the Arte of Physicke, doe in a manner consent with this opinion, in acknowledging *Apollo* to have beene the Inventor thereof, neither did they it without a reasonable cause. For whether by *Apollo* they may understand the Sun who by its gentle and vitall heat doth bring forth, temper and cherish all things; or els some *Heros*, who incited by an excellent and almost divine vnderstanding

*Genes. 1.
Ecclesiast. 38.
1.*

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first taught and put in practise the Medicinall vertues of Herbs; in which sense *Ovid* brings him in speaking thus :

*Herbs are of mine invention, and through all
The world, they me the first Phisitian call.*

Plin. l. 7, c. 2.

The originall of Phisicke arising from those beginnings shall always be celebrated, as celestially, and was increased principally after this manner. After *Apollo*, *Æsculapius* his sonne instructed by his father reduced this Arte being as yet rude and vulgar into a little better and more exquisite forme, for which cause he was reputed worthy to be accounted as one of the Gods. At the same time flourished *Chiron* the Centaure who for that he excelled in knowledge of Plants, and taught *Æsculapius*, (as many report) their faculties, is thought by *Pliny* and some others to have bin the inventor of Phisicke. *Æsculapius* had two sons *Podalirius* and *Machaon* who following their fathers steps & professing Phisicke, did principally beautifie and practise that part thereof which is called Chirurgery, and for that cause were accounted the Inventers thereof. After those *Asclepiades* left this Arte much enlarged as hereditary to his posterity : by whose study and diligence, that part of the Arte was invented and annexed, which by a more curious skill searcheth out and cureth those diseases which lye hid within the body. *Hippocrates* the Coan the son of *Heraclidas*, borne of the noble race of *Asclepiades*, Prince of the Phisicians that were before him, perfected Phisicke and reduced it into an Arte and wrote divers bookes thereof in Greeke. *Galen* succeeded him six hundred yeares after, who was a man most famous not only for his knowledge in Phisicke, but also in all other sciences, who faithfully interpreting every thing that was obscure and difficult in the writings of *Hippocrates*, enlarged the science with many volumes. Thus therefore was the beginning, thus the encrease and perfecting the Arte of Phisicke, as much as can be hoped for from mans industry. Although indeed we cannot deny but that Experience hath much profited this Arte, as it hath and doth many other. For as men perceived that some things were profitable, some unprofitable for this or that disease, they set it downe, and so by diligent observation and marking of singularities, they established universall and certaine precepts and so brought it into an Arte. For so we find it recorded in ancient Histories, before the invention of Phisicke, that the *Babylonians* & *Assyrians* had a custome amongst them, to lay their sicke and diseased persons in the porches and entries of their houses, or to carry them into the streets and market places, that such as passed by and saw them, might give them counsell to take those things to cure their diseases, which they had formerly found profitable in themselves or any other in the like affects, neither might any passe by a sicke man in silence. Also *Strabo* writes that it was a custome in *Græce* that those which were sicke should resort to *Æsculapius* his Temple in *Epidaurum*, that there as they slept, by their dreames they might be admonished by the God

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what meanes they should use to be cured; and when they were freed from their diseales, they writ the manner of their infirmities and the means by which they were cured in tables & fastned them to the pillars of the Temple, not only for the glory of the God, but also for the profit of such, as should afterwards be affected with the like maladies. All which tables (as fame reports) *Hippocrates* transcribed, & so fro those drew the Arte of Phisicke. Beasts also have added much to this Arte. For one man was not only instructed by another, but learned also much from brute beasts, for they by the onely instinct of nature have found out divers herbs, & remedies, by which they freed & preserved themselves from infirmities, which might presently be transferred to mans use. Wherefore considering that such & so many have cōcurred to bring this Arte to perfection, who hereafter dare call in question the excellency therof? cheisly if he respect the subject therof, Mans body, a thing more noble than all other Mundane thing, and for which the rest were created. Which thing moved *Herophilus* in times past to call Phisitions *The hands of the Gods*. For as we by putting forth our hand, do helpe any man out of the water or mud into which he is fallen: even so we doe sustaine those that are throwne downe from the top of health to the gates of death by violence of diseales, with happy medicines, & as it were by some speciall & divine gift deliver them out of the jawes of death. *Homer* the prince of Greek Poets affirms that one Phisition is far more worthy than many other men. All Antiquity gave Phisitions such honor that they worshipped them with great veneration as Gods, or the sons of their Gods. For who is it which is not much delighted with the divine force of healthfull medicines, with which (we see by dayly experience) Phisitiōs, as armed with *Mercuries* rod; do bring back those languishing soules which are even entering the gates of death. Hence it cometh to passe that the divine Poets of ancient times, as *Orpheus*, and *Museus* & *Hesiod*, & the most renowned Philosophers, *Pythagoras*, *Plato*, *Aristotle*, *Theophrastus*, *Chrysippus*, *Cato Censorius*, & *Varro* esteemed nothing more excellent than to excell in the knowledge of Medicines, & to testifie the same by written monuments to Posterity. For what can be more noble or worthy of a generous disposition than to attaine to that by the benefit of Phisicke, that adorned with the ornaments of dignity thou maiest have power over other men, & favoured of Princes, Kings & Emperours, mayest appoint & prescribe to them those things which are profitable to preserve health, & cure their diseases? But if you look for benefit by sciences; then know that the Professors hereof have besides sufficient gain, acquired much honor & many friends. *Hippocrates* comming to *Abdera* to cure *Democritus* of his madnes, not only the men of the City, but also the women, children & people of every age, sexe & ranck went forth to meet him, giving him with a common consent & loud voice the title of a *Tutelary* Deity and father of their Country. But the *Athenians*, for freeing their Country from the plague, with triumphant

In what
esteeme Phi-
sitions have
formerly
been.

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Names given
to Plants.

phant pompe celebrated playes to his honor, & bountifully let upon his head as if he had beene a king, a Crowne of gold weighing a 1000. peices of their golden coine, & erected his statue, for a perpetuall monument of his piety and Learning. *Erasistratus* the Nephew of *Aristotle* by his daughter, received, freely given him by *Ptolomy* king of Egypt, for the cure of his son, 100. Talents of gold. The Emperour *Augustus* honoured *Antonius Musa* with a golden statue. *Quintus Stertinius* yearly received out of the Emperours Treasury 12000. 500. peices of gold. In the time of our Grandfathers *Petrus Aponensis* called *Conciliator* was so famous through all *Italy* for his knowledge in Phisicke, that he could scarce be intreated to come to any man of fashio that was sick, unles he gave him 50. crownes, for every day he was absent from home: but when he went to cure *Honorius* the Bishop of *Rome*, he received 400. crownes for every day he was absent, Our French Chronicles relate in what credit & estimation *James Cotterius* the Phisition was with *Lewis* the 11. King of *France*; for they report he gave him monethly out of his Treasury 10000. crownes. Phisick in times past hath bin in such esteem with many famous & noble personages, that divers Kings & Princes delighted with the study therof, & desirous to attaine glory & credite therby, called sundry herbs after their own names. For so *Gentian* took its name of *Gentius* king of *Jlyria*; the herb *Lyfimachia* of *Lyfimachus* the king of *Macedon*, the *Mithridaticke* herb or *Scordium*, of *Mithridates* the king of *Fontus* & *Bithinia*; *Achillea* of *Achilles*; *Centorie* of *Chiron* the *Centaure*; *Arthemisia* of *Arthemisia* the Queen of *Caria*. *Attalus* king of *Pergamus*, *Salomon* of *Judea*, *Evax* of *Arabia*, and *Juba* the king of *Mauritania*, were not only inflamed with a desire of the knowledge of plants; but either they have writtē bookes of it, or for the great comodity of posterity, invented by their skil many choise Antidots compounded of divers simples; neither the desire of learning this noble science is yet altogether extinct. As may appear by that *india* plant *Tobaco*, called by some the noble herb, *Catherines* herb & *Medices* herb, but commonly the Queens herb, because *Catherine Medices* the mother of our kings, by her singular study and industry made manifest the excellent vertue it hath in curing malignant ulcers & wounds, which before was unknown to the *French*. For these worthy men understood that their glory, thus fastened & ingrafted into the deepe, & as it were everliving roots of plants, would never decay; but shold be propagated to al posterity in many succeeding ages, growing up with their sprouting & budding shoots, stalks, floures & fruits. Neither did these famous men whil'st they adorned this part of phisick suffer the other, which treats of the dissection of mans body, be buried in oblivion, & without their knowledge; as instructed with the precepts & learning of the wisest men, how artificiall & unimitable by mortall hand this fabrick of our body is: Neither is it probable that *Apis*, *Osiris* and *Ptolomy* kings of Egypt, *Solomon*, *Alexander* the great, *Mithridates*, *Attalus*, seeing they dedicated themselves wholly to the cōtemplation of

nature

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natural things, neglected the use of Anatomie, & being men most desirous to know themselves, to have beene ignorant of the structure of there own bodyes being the habitations of their soules immortall & made to the Image of God: seeing they observed with certaine judgment the different lights of the Sun, Moone and stars; and passed over so many lands, so many seas, so many regions so far remote one from another, by waies so terrible by reason of cold, uncouthnes, darknes, by rocks, by fire & sword, with great labour, charge & danger of life, on^{ly} that they might satisfie their minds thirsting after the knowledge of things; and to have left untouched a thing truly noble, admirable, and most worthy of knowledge, easie to be attained by any, and to be acquired without any danger of life, or fortunes.

Seeing there be 3 parts of that Phisicke which at this time we professe, *Chirurgery* which by the use of the hand, *Diet* which with a convenient manner of feeding & ordering the body, & *Pharmacy* that by medicines attempt to expell diseases, & preserve health; The prime Phisitions do not without reason contend which of these may be accounted the cheife. Certainly *Herophilus* had *Pharmacy* in such esteem, that he thought medicines were first mixed & admnistred to the sicke by *Apollo* (whom Antiquity thought a great Deity.) And *Pliny* had so good an opinion of *Diet*, that he exclaimes; The true remedies & Antidotes against diseases are put into the pot & eaten every day by the poore people. Verily al learned men confesse that the manner of curing which is performed by diet, is much more facile & prosperous, than that which is done by medicines; as those things which sought with much labour and cost, are taken with much loathing, and taken are scarce retained, but retained they oft work with much labour & paine: Which things long ago moved *Asclepiades* to exclude the use of medicines, as hurtfull to the stomach. Yet if we will beleewe *Celsus* neither of these parts merit the preheminece, but both of them give place to *Chirurgery*. For seing that fortune is very powerfull in diseases, & the same Meats & Medicines are often good & often vaine, truly it is hard to say, whether the health is recovered by the benefit of *Diet* and *Pharmacy*, or by the strength of the body. Moreover in those cases, in which we most prevaile with medicines, although the profit be more manifest, yet it is evident that health is often sought in vaine even by these things, & often recovered without them. As it may be perceived by some troubled with sore eies, & others with Quartaine feavers, who having bin long troubled by Phisitions are sometimes healed without them. But the effect of *Chirurgery* as it is very necessary, so it is the most evident amongst all the parts of phisicke. For who without *Chirgery* can hope to cure broken, or luxated parts, who wounds & ulcers, who the falling of the Matrix, the stone in the bladder, a member infested with a Gangrene, or Sphacele? Besides, this part also is the most ancient; for *Podalirius* & *Machaon* following their Generall *Agamemnon* to the Trojane wars, yeilded no small

Phisicke is divided into 3 parts.

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The excellency of
Chirurgery.

small comfort to their fellow Soldiers. Whom notwithstanding *Homer* affirms not to have given any helpe in the pestilence, nor in divers other diseases, but onely were accustomed to heale wounds by instruments and medicines. And if the difficulty of learning it argue the excellency of the Arte, who can doubt but Chirurgery must be the most excellent, seeing that none ought to be accounted a Chirurgeon or which can performe his duty, without the knowledge of Diet & Pharmacy? But both the other can performe their parts without Chirurgery. As we may beleieve *Galen*. But if we consider the matter more neerly according to truth; we shall understand those three parts have a certaine common bond, and are very neere of kinred, so that the one implores the ayde of the other; neither can the Physition doe any thing praiseworthy without the conspiracy and joynt consent of these three; therefore in ancient times there was but one performer and user of all the three parts. But the multitude of men dayly encreasing, and on the contrary mans life decreasing, so that it did not seeme able to suffice for to learne and exercise all the three, the workmen devided themselves. Wherefore that which happens to any man either by lot, or counsell, that let him follow, maintaine and onely use, as mindful how short his life is, and how long the Arte.

A



A Catalogue of the VVorkes of

AMBROSE PAREY, the King of France his
Chiefe Chyrurgion, which were set forth in
Latine, by James Guillemeau.

1. **A**N Introduction, or compendi-
ous way to Chirurgery.
2. Of living creatures and mans ex-
cellency.
3. Of the Anatomy of mans body.
4. Of the vitall parts contained in
the Chest.
5. Of the Animall parts placed in
the head.
6. Of the Muscles and Bones, and
other extreme parts of the body.
7. Of Tumors contrary to nature
in generall.
8. Of Tumors contrary to nature
in particular.
9. Of wounds in generall.
10. Of the greene and bloudy wounds
of each severall part.
11. Of wounds made by Gun-shot,
and other fiery Engins, and all sorts of
weapons.
12. Of Contusions and Gan-
greenes.
13. Of Ulcers, Fistulaes, and He-
morroides.
14. Of Ligatures, or Bandages.
15. Of Fractures.
16. Of Luxations, and Straines.
17. Of di-verse affects of the parts
not agreeable to nature, whose cure
commonly is performed by the hand.
18. Of the Gout.
19. Of the Lues Venerea, and
those Symptomes that happen by reason
thereof.
20. Of the small Poxes and Measels
and also of Wormes, and the Leprosie.
21. Of Poysons, and of the biting of
mad dogges, and the stinging and biting
of venemous creatures.
22. Of the Plague.
23. Of the Arts to repaire those
things which are defective, either by na-
ture or accident.
24. Of the generation of Man.
25. Of Monsters and Prodigies.
26. Of the Faculties of simple me-
dicines, together with their composition
and use.
27. Of Distillations.
28. A Treatise of reports, and the
embalming of dead bodies.
29. An Apologie, and Voyages; be-
ing not in the Latine, but transla-
ted out of the last French Edition,
whom also I have followed in the
number of the Bookes, least any
should thinke some wanting, fin-
ding but 26. in the Latine, and
29. in the French.





AN INTRODVCTION OR COMPENDIOVS VVay to Chyrurgerie.

CHAP. I.

What Chyrurgerie is.



CHYRVRGERIE is an Art, which teacheth the way by reason, how by the operation of the hand we may cure prevent and mitigate diseases, which accidentally happen unto us. Others have thought good to describe it otherwise, as that; it is that part of Physicke which undertaketh the cure of diseases by the sole industry of the hand; as by cutting, burning, sawing off, uniting fractures, restoring dislocations, and performing other workes, of which we shall hereafter treat. Chyrurgery also is thus defined by the Author of the medi-

The definition of Chyrurgerie.

cinall Definitions; The quicke motion of an intrepide hand joyned with experience: or an artificiall action by the hands used in Physicke, for some convenient intent. Yet none must thinke to attaine to any great perfection in this Art, without the helpe of the other two parts of Physicke; I say of Diet and Pharmacie, and the divers application of proper medicines, respecting the condition of the causes, diseases, symptomes, and the like circumstances, which comprehended under the names of things naturall, not naturall, and besides nature (as they commonly call them) wee intend to describe in their proper place. But if any reply, that there be many which doe the workes of Chirurgery, without any knowledge of such like things, who notwithstanding have cured desperate diseases with happy successe; let them take this for an answer, that such things happen rather by chance, than by the industry of the Art, and that they are not provident that commit themselves to such. Because that for some one happy chance, a thousand dangerous errors happen afterwards, as *Galen* (in divers places of his Method) speaks against the Emperickes. Wherefore seeing wee have set downe Chirurgery to be a diligent operation of the hands, strengthened by the assistance of Diet and Pharmacie, wee will now shew, what, and of what nature the operations it are.

What necessary for a Chirurgeon.

CHAP. II.

Of Chirurgicall operations.

The nature of
a Chirurgion.

Experience
more necessa-
ry for a Chi-
rurgion, than
Art.

Examples of
taking away
that
super

* Two tuni-
cles of the
eyes.

Examples of
replacing.

Example of
separating
things joyned
together.

Examples of
uniting things
disjoyned.

Examples of
supplying de-
fects.

Five things are proper to the dutie of a Chirurgian; To take away that which is superfluous; to restore to their places, such things as are displaced; to separate those things which are joyned together; to joyne those which are separated; and to supply the defects of nature. Thou shalt fare more easily and happily attaine to the knowledge of these things by long use and much exercise, than by much reading of Bookes, or daily hearing of Teachers. For speech how perspicuous and elegant soever it be, cannot so vividly expresse any thing, as that which is subjected to the faithfull eyes and hands.

We have examples of taking away that which abounds, in the amputation, or cutting off a finger, if any have sixe on one hand, or any other monstrous member that may grow out: in the lopping off a putrified part inwardly corrupted; in the extraction of a dead child, the secundine, mole or such like bodies out of a womans wombe; in taking downe of all Tumors, as Wens, Warts, Polypus, Cancers, and fleshy excrescences of the like nature; in the pulling forth of bullets, of peeces of maile, of darts, arrowes, shells, splinters, and of all kind of weapons in what part of the body soever they be. And hee taketh away that which redounds, which plucks away the haire of the eye-lids which trouble the eye by their turning in towards it: who cuts away the web, possessing all the * *Adnata*, and part of the * *Cornea*: who letteth forth suppurated matter; who taketh out stones in what part soever of the body they grow; who puls out a rotten or otherwise hurtfull tooth, or cuts a naile that runs into the flesh; who cuts away part of the *uvula*, or haire that grow on the eye-lids; who taketh off a Cataract; who cuts the navill or fore-skinne of a child newly borne, or the skinnie caruncles of womens privities.

Examples of placing those things which are out of their naturall site, are manifest in restoring dislocated bones; in replacing of the guts and kall fallen into the cecds, or out of the navill or belly by a wound, or of the falling downe of the wombe, fundament, or great gut, or the eye hanging out of its circle, or proper place.

But wee may take examples of disjoyning those things which are continued from the fingers growing together, either by some chance, as burning, or by the imbecillitie of the forming facultie: by the disjunction of the membrane called *Hymen*, or any other troubling the necke of the wombe, by the dissection of the ligament of the tongue, which hinders children from sucking and speaking, and of that which hinders the *Glans* from being uncovered of the foreskinne; by the devision of a varicous veine, or of a halfe cut nerve or tendon, causing convulsion: by the division of the membrane stopping the auditory passage, the nose, mouth, or fundament, or the stubborne sticking together of the haire of the eye-lids. Referre to this place all the workes done by Causticks, the Saw, Trepan, Lancet, Cuppinglasses, Incision Knife, Leaches, either for evacuation, derivation or revulsion sake.

The Chirurgion drawes together things separated, which healeth wounds by stitching them, by bolstering, binding, giving rest to, and fit placing the part: which repaires fractures; restores luxated parts; who by binding the vessell, staie the violent effusion of blood: who cicatrifeth cloven lips, commonly called hare-lips; who reduces to equalitie the cavities of Vicers, and Fistula's.

But hee repaires those things which are defective, either from the infancy, or afterwards by accident, as much as Art and Nature will suffer, who sets on an eare, an eye, a nose, one or more teeth; who fills the hollownesse of the palat eaten by the Poxe, with a thinne plate of gold or silver, or such like; who supplies the defect of the tongue in part cut off, by some new addition; who fastens to a hand, an arme or legge with fit ligaments workemanlike; who fits a doubler bumbasted, or made with iron plates to make the body straight; who fills a shoe too big with corke, or fastens a stocking or socke to a lame mans girdle to helpe his gate. We will treate more fully of all these in our following Worke. But in performing those things with the hands,

we cannot but cause paine : (for who can without paine cut off an arme, or legge, de-
vide and teare asunder the necke of the bladder, restore bones put out of their places,
open ulcers, bind up wounds, and apply cauteries, and doe such like?) notwithstanding
the matter often comes to that passe, that unlesse wee use a judicious hand, wee
must either die, or leade the remnant of our lives in perpetuall misery. Who
therefore can iustly abhorre a Chirurgion for this, or accuse him of crueltie? or de-
sire they may be served, as in ancient times the Romanes served *Archagatus*, who at the
first made him free of the Citty, but presently after, because he did somewhat too cru-
elly burne, cut and performe the other workes of a good Chirurgion, they drew him
from his house into the Campus Martius and there stoned him to death, as wee have
read it recorded by *Sextus Cheronius Plutarcho* : Necce by his daughter. Truly it was
an inhumane kind of ingratitude, so cruelly to murder a man intent to the workes of
so necessary an Art. But the Senate could not approve the act, wherefore to expiate
the crime as well as then they could, they made his Statue in gold, placed it in *Athen-*
lapius his Temple and dedicated it to his perpetuall memorie. For my part I very well
like that saying of *Celsus* ; A Chirurgeon must have a strong, stable, and intrepide
hand, and a minde resolute and mercilesse, so that to heale him he taketh in hand, he
be not moved to make more haste than the thing requires ; or to cut lesse than is need-
full ; but which doth all things as if he were nothing affected with their cries ; not gi-
ving heed to the judgement of the vaine common people, who speake ill of Chirurgi-
ons because of their ignorance.

Archagatus
the Chirur-
gion.

In p. 101.
100. 7.

The proper-
ties of a good
Chirurgeon.

CHAP. III.

Of things Naturall.

What the Chirurgion may rightly and according to Art, performe the fore-
said workes, he must set before his eyes certaine Indications of working: O-
therwise he is like to become an Empericke, whom no Art, no certaine rea-
son, but onely a blind temerity of fortune moves to boldnesse and action. These In-
dications of actions are drawne from things (as they call them) naturall, not naturall,
and besides nature, and their adjuncts, as it is singularly delivered of the Ancients, be-
ing men of an excellent understanding. Wherefore we will prosecute according to
that order, all the speculation of this Art of ours. First therefore things naturall are so
termed, because they constitute and containe the nature of mans body, which wholly
depends of the mixture and temperament of the 4. first bodies, as it is shewed by *Hip-
pocrates* in his Booke *de Natura humana* : wherefore the consideration thereof belongs
to that part of Physicke which is named *Physiologia* ; as the examination of things not
naturall to *Diatetice*, or Diet, because by the use of such things it endeavours to retaine
and keepe health : but *Therapeutice* or the part which cures the diseases, and all the
affects besides nature, challenges the contemplation of those things which are not a-
greeable to nature. But the things which are called naturall may be reduced to seven
heads : besides which there comes into their fellowship, those which wee terme
annexed.

From whence
we must draw
indications.

What things
are called na-
turall.

To what part
of Physicke
things not na-
tural pertaine.
To what
things besides
nature.

| | | | |
|--|-------------------|---|-------------------|
| The seven prin- cipall heads of things naturall are, | Elements. | To these are annexed and somewhat neere, | Age. |
| | Temperaments. | | Sexe. |
| | Humors. | | Colour. |
| | Parts or members. | | Composure. |
| | Faculties. | | Time or season. |
| | Actions. | | Region. |
| | Spirits. | | Vocation of life. |

CHAP. IIII.

Of Elements.

What an Element is.

Elements are understood by reason, not by sense.

Why he expressed the Elements by these names or qualities.

Two principal qualities are in each Element.

Why the Aire heats not so vehemently, as the Fire.

AN Element (by the definition which is commonly received amongst Physicians) is the least and most simple portion of that thing which it composeth: or that my speech may be the more plaine: the foure first and simple bodies are called Elements; Fire, Aire, Water, and Earth; which accommodate and subject themselves as matter to the promiscuous generation of all things which the Heavens engirt, whether you understand things perfectly, or unperfectly mixed. Such Elements are onely to be conceived in your minde, being it is not granted to any external sense to handle them in their pure and absolute nature. Which was the cause that Hippocrates expressed them not by the names of substances, but of proper qualities; saying, Hot, Cold, Moist, Drie; because some one of these qualities is inherent in every Element, as his proper and essentiall forme, not onely according to the excesse of latitude, but also of the active facultie; to which is adjoynd another simple qualitie, and by that reason principall, but which notwithstanding attaines not to the highest degree of his kinde, as you may understand by Galen in his first Booke of Elements. So, for example sake, in the Aire wee observe two qualities, Heat, and Moisture, both principall, and not remitted by the commixture of any contrary quality, for otherwise they were not simple. Therefore thou maist say, what hinders that the principall effects of heat shew not themselves as well in the Aire, as in the Fire? because as we said before, although the Aire have as great a heat according to his nature, extent and degree, no otherwise than Fire hath, yet it is not so great in its active qualitie. The reason is, because that the calfa&orie force in the Aire is hindered, and dulled by societie of his companion and adjoynd qualitie, that is, Humidity which abateth the force of heat, as on the contrary, drinesse quickneth it. The Elements therefore are endewed with these qualities.

| | | | | | | | | |
|-----------------------------|---|-------|---|----|---|-----------------|---|----------------------------|
| Names of the substances; | { | Fire | } | is | { | Hot and drie. | } | Names of the qualities. |
| | | Aire | | | | Moist and hot. | | |
| | | Water | | | | Cold and moist. | | |
| | | Earth | | | | Cold and drie. | | |

How the Elements may be understood to be mixed in compound bodies.

Why of the first qualities, two are accounted active, and two passive.

These foure Elements in the composition of naturall bodies, retain the qualities they formerly had, but that by their mixture and meeting together of contraries, they are somewhat tempered and abated. But the Elements are so mutually mixed one with another, and all with all, that no simple part may be found; no more than in a masse of the Emplaister *Diacalcitheos* you can shew any *Axungia*, oyle, or licharge by it selfe; all things are so confused and united by the power of heate, mixing the smallest particulars with the smallest, and the whole with the whole, in all parts. You may know and perceive this concretion of the foure Elementary substances in one compound body, by the power of mixture, in their dissolution by burning a pile or heape of greene wood. For the flame expresses the Fire, the smoke the Aire, the moisture that sweats out at the ends, the Water, and the ashes, the Earth: You may easily perceive by this example so familiar and obvious to the senses what dissolution is, which is succeeded by the decay of the compound body; on the contrary, you may know that the coagmentation, or uniting and ioyning into one of the first mixed bodies is such, that there is no part sincere, or without mixture. For if the heat which is predominant in the fire, should remaine in the mixture in its perfect vigor, it would consume the rest by its pernicious neighbourhood; the like may be said of Coldnesse, Moisture, and Drinesse; although of these qualities, two have the title of Active, that is, Heat, and Coldnesse, because they are the more powerfull; the other two Passive, because they may seeme more dull and slow, being compared to the former. The temperaments of all sublunarie bodies arise from the commixture of these substances & elementary qualities, which hath bin the principall cause that moved me to treat of the Elements. But I leave the force and effects of the Elementary qualities

qualities to some higher contemplation, content to have noted this, that of these first qualities, (so called, because they are primarily and naturally in the four first bodies) others arise and proceed, which are therefore called the second qualities: as of many these, Heaviness, Lightness, variously distributed by the four Elements, as the Heat, or Coldness, Moistness or Drienesse, have more power over them. For of the Elements, two are called light, because they naturally affect to move upwards: the other two heavy, by reason they are carried downward by their own weight. So we thinke the fire the lightest, because it holds the highest place of this lower world; the Aire which is next to it in site, wee account light; for the water which lies next to the Aire, we judge heavy; and the earth the center of the rest we judge to be the heaviest of them all. Hereupon it is, that light bodies, and the light parts in bodies, have most of the lighter Elements; as on the contrary heavy bodies have more of the heavier. This is a briefe description of the Elements of this fraile world, which are onely to be discerned by the understanding, to which I thinke good to adjoyne another description of other Elements, as it were arising or flowing from the commixture of the first; for besides these, there are said to be Elements of generation and Elements of mans body. Which as they are more corporall, so also are they more manifest to the sense. By which reason *Hippocrates* being moved, in his Booke *de Natura humana*, after he had described the nature of Hot, Cold, Moist and Drie, he comes to take notice of these by the order of composition. Wherefore the Elements of our generation, as also of all creatures which have blood, are seed and mensstruous blood. But the Elements of our bodies are the solid and similar parts arising from those Elements of generation. Of this kind are bones, membranes, ligaments, veines, arteries, and many others manifest to the eyes, which wee will describe at large in our Treatise of Anatomie.

Why the first qualities are so called.
What the second qualities are.
What Elements are light, what heavy.

What the Elements of generation are.

What the Elements of mixt bodies.

CHAP. V.

Of Temperaments.

Temperament is defined a proportionable mixture of hot, cold, moist and drie; or, it is a concord of the first disagreeing faculties. That harmony springs from the mixture of the four first bodies of the world. This whether Temperament or concord is given to Plants and brute beasts for the beginning of their life, and so consequently for their * life and forme. But as Plants are inferior in order and dignitie to beasts, so their * life is more base and infirme, for they have onely a growing facultie by which they may draw an Alimentarie joyce from the Earth, as from their mothers breasts, to preserve them and their life, by which they may grow to a certaine bignesse; and lastly, by which they may bring forth their like for the perpetuall continuance of their kind. But the * life of beasts have to the three former the gift of sense annexed; by benefit whereof, as by a certaine inward knowledge, they shun those things that are hurtfull, and follow those which profit them, and by the power of their will, they move themselves whither they please. But the soule of man farre more perfect and noble than the rest, ariseth not from that earthly mixture and temper of the Elements, but acknowledgeth and hath a farre more divine offspring, as we shall teach hereafter.

What a Temperament is.

* *Anima*.
What the life performs in Plants.

* *Anima*.
What in beasts.

Mans soule comes from above.

The manifold division of a Temperament.

They divide a Temperament at the first division into two kinds; as one a temperate, another an untemperate. The untemperate is of two sorts; the one wholly vicious, which hath altogether exceeded the bounds of mediocritie: the other which hath somewhat strayed from the mediocritie of temper, but notwithstanding is yet contained within the limits of health: as that which brings no such evident harme to the actions, but that it somewhat hinders them, so that they cannot so well and perfectly performe their duties. But the vicious Temperament doth three manner of wayes corrupt the functions, either by weakning, depraving or abolishing them. For so stupor, or astonishment, diminisheth and sloweth the quicknesse of motion; convulsion depraves it; the Palsie abolisheth it, and taketh it away. The temperate Temperament

A Temperament, and Power.

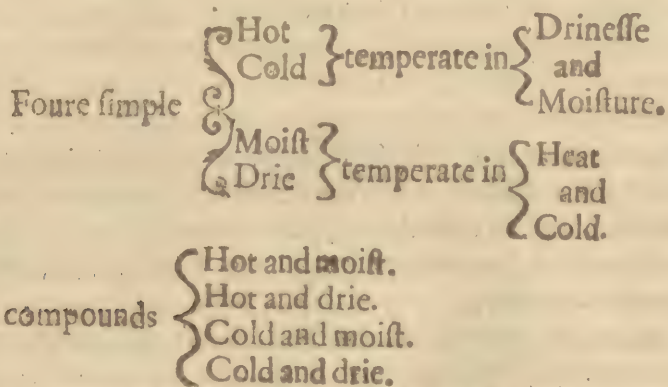
* *Ad pondus,
vel ad iustitiam.*

A tempera-
ment *ad iustitiam*.

The tempera-
ment of a
bone.

perament is also divided into two kinds; which is either to equality of weight, or Iustice. It is called a temperature to weight which ariseth from the equall force of exactly concurring qualities, and as placed in a perfect ballance, drawes downe neither to this nor that part. They thinke the example of this Temperament to appeare in the inner skinne of the fingers ends of a man tempered to Iustice. For seeing the most exquisite touch resides there, they ought to be farre from all excesse of contrariety; for otherwise being corrupted by too much heat or cold, moisure, or drinesse, they could give no certaine judgement of the tangible qualities. For which thing nature hath excellently provided in the fabricke and coagmentation of the parts of which the skinne consists. For it is composed of hot and moist flesh, and therefore soft, and of a tendon and nerve cold and drie, and therefore hard, which are not onely equally fitted and conjoynd, but wholly confused and mixed together, by which it comes that removed from all extremes of opposition, it is placed in the midst, as a rule to judge of all the excessees that happen to the touch. So it was fit the eye, which was to be the instrument of sight, should be tinctured with no certaine colour, that it might be the lesse deceived in the judgement of colours. So it was convenient the hearing should not be troubled with any distinct sound, whereby it might more certainly judge of equall and unequall sounds, not distinguished by a ratable proportion; neither was it fit the tongue should have any certaine taste, lest the access of that taste should deceive it in knowing and judging of so many different tastes. The Temperature tempered to iustice is that, which although it is a little absent from the exact and severe parity of mixed qualities, yet hath that equalitie which doth fully and abundantly suffice for to performe all the functions fitly and perfectly which nature doth require, wherefore we can judge no otherwise of it than by the integritie of the Actions. For hence it tooke its name, for as distributive Iustice equally gives to every one rewards, or punishment according to their deserts; so nature having regard to all the parts of the bodie, gives them all that temper which may suffice to performe those duties, for which they are ordained. Let us for an example consider a Bone; no man doubts but that, like as the other similar parts of the body proceeds from the mixture of the foure Elements: but neverthelesse nature waighing the use of it, and ordaining it to support the rest of the body, would have more of the terrene and drie Element infused into it, that it might be the stronger and firmer to sustaine weight. But a Ligament, seeing it was made for other uses, hath lesse of that earthly drienesse than the bone, but more than the flesh, altogether fitted to its nature. So it hath seemed good to nature to endue all the parts of the body, not onely with an equall portion, but also proportion of Elements and qualities; wee call that a temperament to Iustice: and wee say that it is in Plants, Brute beasts, and all naturall bodies, which enjoy that temper and mediocritie, which may be agreeable to their nature. Hereupon by comparison arise eight kindes of intemperate tempers, as

The kindes of
intemperate
tempers.



But these temperaments are either of the whole body, or of some part thereof

and that either { principall, as { the Braine.
the Heart.
the Liver.
the Stones.
or { of the rest of the parts composed of other which have no principality in the body.

Again, such temperaments are either healthfull, which suffice perfectly to performe their actions; or unhealthfull, which manifestly hurt them, the signes whereof may be read described by *Galen*. And you must observe that when we say the body, or any part of it is hot, wee understand more hot than is fit for one of that kinde which is tempered to justice; as when we say a man hath a hot liver, wee meane his liver is hotter, than a man justly tempered should have; for all other tempers, whether of the whole body, or any of the parts thereof, are to be referred to this; and in the cure of diseases we must looke upon it, as the marke, and labour to preserve it by the use of convenient things, as much as lies in our power. Wherefore because it is very necessary to know the distinction of temperaments, I have thought good in this place, briefly to handle the temperaments of the parts of the body, ages, seasons of the yeare, humors, and medicines. Therefore the temperaments of the parts of our body are of this nature, not onely by the judgement of the touch of a mans hand which is justly tempered / who is often deceived by flowing heate, which spread from the heart into all the body, imparts a certaine kinde of heate to all the parts, / but also by the rule of their reason, composition and substance, as

Lib. 2. de Temper. & in Ar. se m. 68.

What the temperaments of mans body are.

A Bone is the most drie and cold.

A Gristle lesse than it.

A Ligament lesse than a Gristle.

A Tendon is so much drier and colder than the membrane, by how much it in the same temper exceeds a Veine and Arterie. Then follow the harder veines, for the softer are in a middle temper of driness and moisture, like as the skinne; although all both soft and hard, are of a cold temper. Wherefore all these parts of their owne nature are cold and without bloud: although the veines and arteries waxe hot, by reason of the heate of the bloud they containe, which notwithstanding also borroweth that heat from the heart, as a part most hot, and softer than the skinne; the liver next followeth the heart, in the order of the hotter parts, which is far softer than the skinne it selfe: for if, according to *Galen's* opinion, the heart is somewhat lesse hard than the skinne, and that is farre harder than the liver, as appeares by touching them, it must necessarily follow that the liver much exceeds the skinne in softnesse; I understand the skinne simple, and separated from the flesh lying under it, to which it firmly cleaves. The flesh is more moist and hot than the skinne, by reason of the bloud dispersed in it. The spiall marrow is colder and moister than the skinne; but the braine so much exceeds it in moisture, as it is exceeded by the fat. The lungs are not so moist as the fat, and the spleene, and kidnies, are of the like nature, and nevertheless they are all moister than the skinne.

Ad finem lib. de temper.

According to the diversities of ages, the temperaments both of the whole body, and all its parts, undergoe great mutations; for the bones are farre harder in old men than in children, because our life is, as it were a certaine progresse to driness, which when it comes to the height consequently causeth death. Wherefore in this place we must speake of the Temperaments of ages, when first we shall have defined what an age is. Therefore an age is defined, a space of life in which the constitution of the bodie of its selfe and owne accord, undergoeth manifest changes; the whole course of life hath foure such ages. The first is childhood, which extends from the birth to the eighteenth yeare of age, and hath a hot and moist temper, because it is next to the hot and moist beginnings of life, seed and bloud: Youth followeth this which is prolonged from the eighteenth, to the twentie fift yeare, and is temperate, and in the midst of all excesses; Mans estate succeedeth youth, which they deny to extend beyond the thirtie fift yeare of age, in its proper temper it is hot and drie: whereby it commeth to passe that then the heate is felt more acride and biting, which in childhood seemed milde; because the progresse of the life to driness hath much waisted the native humiditie.

The temperaments of ages.

What an age is.

Then succedes old age ever devided into two parts; the first whereof extends from the thirtie fift, to the fortie ninth yeare; those of this age are called old men (* but we commonly call them middle aged men.) The latter is as it were devided by *Galen* into three degrees; the first whereof are those, who having their strength sound and firme undergoe civill affaires and busineses: which things those which are in the second de-

Old age devided into two parts. * Three degrees of the second part of old age.

gree

Old men have
their solid
parts drie.

gree of old age cannot doe, because of the debilitie of their now decaying strength: but those which are in the last degree are afflicted with most extreme weaknesse and miserie, and are as much deprived of their senses and understanding, as of the strength of their bodies; whereof arose this Proverbe, *Old men twice children*. Those old men of the first ranke are pleasant, and courteous, and those we say are beginning to grow old, or in their greene old-age; those of the second sort delight in nothing but the beord and bed; but old decrepit men of the last order, thinke of nothing else, than their graves and monuments. Their firme and solid parts are of a cold and drie temperature, by reason of the decay of the radicall moisture, which the inbred heate causeth in the continuance of so many years. Which thing may happen in a short space, by the vehement flame of the same natural heate, turned by feavours into a fiery heate. But if any to prove old men moist, will object, that they cough up, and spit much, I will answer him, as an old Doctor once said; That a pitcher filled with water may powre forth much moisture; yet no man will deny but that such a vessell of its owne terrene nature and matter is most drie; so old men may plainly be affirmed to be moist, by reason of their defect of heate, and abundance of excrements. But this description of ages, is not to be taken so strictly, as alwayes to be measured by the spaces and distances of yeares, for there are many which by their owne mildemour, seeme elder at fortie, than others doe at fiftie.

A comparison
of the foure
ages to the
foure seasons
of the yeare.

Lastly, the famous Philosopher *Pythagoras*, devided mans life into foure ages, and by a certaine proportion compared the whole course thereof to the foure seasons of the yeare; as childhood to the Spring, in which all things grow and sprout out, by reason of plenty and abundance of moisture. And youth to the Summer, because of the vigour and strength which men enjoy at that age. And mans estate, or constant age to Autumne, for that then after all the dangers of the forepassed life, the gifts of discretion and wit acquire a seasonableness, or ripeness, like as the fruits of the earth enjoy at that season. And lastly, he compares old age to the sterile and fruitlesse Winter, which can ease and console its tediousnesse by no other meanes, than the use of fruits gathered and stored up before, which then are of a cold and troublesome condition. But for extreme old age, which extends to eightie, or a hundred yeares, it is so cold and drie, that those which arrive at that decrepit age are troublesome, harsh, touchy, froward, crabby, and often complaining, untill at the length deprived of all their senses, tongue, feet, and understanding, they doting, returne againe to childishnesse, as from the stasse to the start. And thus much of the Temperaments of ages.

The temper
of the seasons
of the yeare.

But now in like manner we will explaine the temperatures of the seasons of the yeare, which are foure, the Spring, Summer, Autumne, Winter. The Spring continues almost from the twelfth or thirteenth day of March, to the midst of May, *Hippocrates* seemeth to make it hot and moist; which opinion seemeth not to have sprung from the thing it selfe, but from an inveterate error of the ancient Philosophers, who would fit the temperaments of the foure seasons of the yeare, as answering in proportion to the temperatures of the foure ages.

Now the
Spring is tem-
perate.

Apher. 9. sect. 3

Apher. 20. sect. 3

Autumne
quali.

For if the matter come to a just triall, all men will say the Spring is temperate, as that which is in the midst of the excesse of heate, cold, moisture and drincle; not onely by comparison because it is hotter than Summer, and colder than Winter; but because it hath that qualirie of its owne proper nature. Wherefore it is said of *Hippocrates*: The Spring is most holesome and least deadly; if so be that it keepe its native temper, from which if it decline, or succeed a former untemperate season, as Autumne, or Winter, it will give occasion to many diseases described by *Hippocrates*; not that it breeds them, but because it brings them to light, which before lay hid in the body. Summer is comprehended in the space of almost foure moneths; it is of a hot and drie temper, a breeder of such diseases as proceed from choler, because that humor at this time is heaped up in many bodies by adustion of bloud bred in the Spring; but all such diseases doe speedily runne their course. The beginning of Autumne, is from the time the Sunne enters into Libra, and endures the like space of time as the Spring. But when it is dry, it hath great inequality of heate and cold; for the mornings and evening being very cold, the noondayes on the contrary are exceeding

ding hot. Wherefore many diseases are in Autumn, and then long and deadly especially if they incline to wards winter: because all dayly and sodaine changes to heat and cold are dangerous. The winter possesse the remnant of the yeare, and is cold and moist, it encreases naturall heat, stirs up the appetite, and augments Phlegme. It encreases heat by *Antiperistasis*, or contrariety of the encompassing aire, which being then cold prohibits the breathing out of heate: whereby it happens that the heat being driven in and hindered from dissipation, is strengthened by counting its forces. But it augments Phlegme, for that men are more greedy, the Appetite being encreased by the strengthened heat: from whence proceeds much crudity and a large store of diseases, especially Chronicke or Long which spread and encrease rather in this winter season than in any other part of the yeare. To this discourse of the temper, of the seasons of the yeares, is to be revoked the variety of tempers which happens every day, which certainly is not to be neglected, that there may be place of election, especially if nothing urge. For hitherto belongs that saying of *Hippocrates*; When in the same day it is one while hot, another cold, Autumnall diseases are to be expected. Therefore an Indication taken from hence is of great consequence to the judgement of diseases; for if it agree with the disease, the disease is made more contumacious, and difficult to cure. Whereupon the Patient and Physicion will have much trouble; but if on the contrary it reclame and dissent, the health of the Patient is sooner to be expected. Neither is it a thing of lesse consequence to know the customes and habits of the places and Countries in which we live, as also the inclination of the Heavens and temperature of the Aire; but let vs leave these things to be considered by Naturall Philosophers, that we may deliver our judgement of the temperaments of *Humors*. blood, as that which answers to the Aire in proportion, is of a hot and moist nature, or rather temperate, as *Galen* testifies; for, saith he, it is certaine and sure that ~~the~~ The blood is neither hot, nor moist, but temperate as in its first composition none of the 4 first qualities exceeds other by any manifest excessse, as he repeats it upon the 39. sentence. Phlegme, as that which is of a waterish nature, is cold and moist; no other-wise than Choler being of a fiery temper, is hot and dry. But Melancholy assimilated to Earth, is cold and dry. This which we have spoke in generall of Phlegme and Melancholy, is not alwayes true in every kind of the said humors. For salte Phlegme is of a hot and dry temperature, as also all kinds of Melancholy which have arose, or sprung by adustion from the native and Alimentary, as we will teach in the following Chapter. Now the Temperaments of Medicines have not the same forme of judgement, as those things which we have before spoken of; as, not from the Elementary quality which conquering in the contention and mixture, obtains the dominion; but plainly from the effects which taken or applyed they imprint in a temperate body. For so we pronounce those things hot, cold, moist, or dry, which produce the effects of Heate, Coldnes, Moisture or Drynes. But we will defer the larger explication of these things to that place, where we have peculiarly appointed to treat of Medicines; where we will not simply enquire whether they be hot or cold, but what degree of heate and cold, or the like other quality: in which same place we will touch the temperature and all the Nature of tastes, because the certainest judgement of medicines is drawne from their tastes. Hitherto of Temperaments, now we must speake of Humors whose use in Physicall speculation is no lesse than that of Temperaments.

How Winter
increases the
native heat.

Aphor. 4. sect. 3

The tempera-
ments of Hu-
mors.

Lib. de natura
humana ad
font. 36. Sect. I
The tempera-
ture of the
blood.
From whence
we judge of
the tempera-
ture of our dis-
eases.

CHAP. VI.

Of Humors.

TO know the nature of *Humors* is a thing notonely necessary for Physicions, but also for Chirurgeons, because there is no disease with matter which arises from some one, or the mixture of more *Humors*. Which thing *Hippocrates* understanding, writ, every Creature to be either sicke or well according to the Con-

The know-
ledge of the
Humors is
necessary.
Lib. de natura
Hum.

ditation of the *Humors* in the body. And certainly all putride feavers proceed from the putrifaction of *Humors*. Neither doe any acknowledge any other originall or distinction of the differences of Abscesses or Tumors: neither do ulcerated, broke or otherwise wounded members hope for the restoration of continuity, from other than from the sweet falling downe of humors to the wounded part. Which is the cause that often in the cure of these effects, the Physicians are necessarily busied in tempering the Blood, that is, bringing to a mediocrity the 4 humors composing the masse of blood, if they at any time offend in quantity, or quality. For whether if any thing abound, or digresse from the wonted temper in any excessse of heat, cold, viscosity, grossenes, thionnes, or any such like quality, none of the accustomed functions will be well performed. For which cause those cheife helpes to preserve and restore health have beene divinely invented; *Phlebotomy*, or bloodletting which amends the quantity of too much blood; and purging which corrects and drawes away the vicious quality. But now let us begin to speak of the *Humors*, taking our beginning from the definition.

The helpes of
Health.

What an
humor is.

The manifold
division of
Humors.

The materiall
and efficient
causes of blood

What the *Chylus*
is.
* *Vena porta*

Where the
blood is per-
fected.

The receptacles
of Choler and
Melancholy.

Four unlike
Humors in the
Bloody.

A comparison
of blood and
new wine.

An Humor (is called by Physicians) what thing so ever is Liquide and flowing in the body of living Creatures endued with Blood, & that is either natural, or against nature. The naturall is so called because it is fit to defend, preserve and sustaine the life of a Creature. Quite different is the nature & reason of that which is against nature. Again the former is either Alimentary, or Excrementitious; The Alimentary which is fit to nourish the body, is that Humor which is contained in the veines and arteries of a man which is temperate & perfectly vel; & which is understood by the general name of blood which is let out at the opening of a veine. For blood otherwise taken is an Humor of a certaine kind, distinguished by heate and warmnesse from the other Humors comprehended together with it, in the whole masse of the blood. Which thing that it may the better be understood, I have thought good in this place to declare the generation of Blood by the efficient and materiall causes. All things which we eate or drink are the materialls of blood, which things drawne into the bottome of the ventricle by its attractive force, and there detained, are turned by the force of concoction implanted in it, into a substance like to Almond Butter. Which thing although it appeare one and like it selfe, yet it consists of parts of a different nature, which not only the variety of meats, but one & the same meate yeelds of it self. We terme this *Chylus* (when it is perfectly concocted in the stomacke). But the * Gate-veine receives it driven from thence into the small guts, and sucked in by the Meseraicke veins, and now having gotten a litle rudiment of Change in the way, carries it to the Liver, where by the blood making faculty which is proper and naturall to this part, it acquires the absolute and perfect forme of blood. But with that blood at one and the same time and action all the humors are made whether Alimentary or excrementitious. Therefore the blood that it may performe its office, that is, the faculty of nutrition, must necessarily be purged and clesed from the two excrementitious humors. Of which the bladder of Gall drawes one which we call Yellow Choler, and the Spleen the other which we terme Melancholy. These two humors are naturall, but not Alimentary, or nourishing, but of another use in the body, as afterwards we will shew more at large. The blood freed from these 2 kinds of excrements is sent by the veines and Arteries into all parts of the body for their nourishment. Which although then it seeme to be of one simple nature, yet notwithstanding it is truly such, that foure different and unlike substances may be observed in it, as blood properly so named, Phlegme Choler and Melancholy, not only distinct in colour, but also in taste effects and qualities. For as *Galen* notes in his booke *De Natura humana*, Melancholy is acide or soure, choler bitter, Blood sweet, Phlegme unsavory. But you may know the variety of their effects, both by the different temper of the nourished parts, as also by the various condition of the diseases springing from thence. For therefore such substances ought to be tempered and mixed amongst themselves in a certaine proportion, which remaining health remaines, but violated, diseases follow. For all acknowledge that an *Oedema* is caused by Phlegmatick, a *Scirrhus* by Melancholike, an *Erysipelas* by Cholericke, and a *Phlegmone* by pure and laudable blood. *Galen* reaches by a familiar example of new wine presently taken from the presse, that these 4 substances are contained in that one Masse, and mixture of the blood. In which every one observes

observes 4. distinct Essences ; for the flower of the wine working up swims at the top, the dregs fall downe to the bottome, but the crude and watery moisture mixed together with the sweet and vinous liquor, is every where diffused through the body of the wine, the flower of the wine represents Choler, which bubling up on the superficies of blood, as it concretes and growes cold, shineth with a golden colour; the dregs Melancholy, which by reason of its heaviness ever sinketh downward, as it were the Mudd of the blood; the crude and watery portion Phlegme: for as that crude humor, except it be rebellious in quantity, or stubborn by its quality, there is hope it may be changed into wine, by the naturall heate of the wine; so Phlegme which is blood halfe concocted, may by the force of native heat be changed into good and laudable blood. Which is the cause that nature decreed, or ordained no peculiar place, as to the other 2. humours, whereby it might be severed from the blood; But the true and perfect liquor of the wine represents the pure blood, which is the more laudable and perfect portion of both the humors of the confused Masse. It may easily appeare by the following scheme, of what kind they all are, and also what the distinction of these foure humors may be.

Phlegme is
blood halfe
concocted.
Why it hath
no proper re-
ceptacle.

| | NATURE | CONSISTANCE | COLOUR | TASTE | USE. |
|---------------------|---|--|--|---|---|
| Blood is | Of Nature sery, hot and moyst, or ra- ther tempe- rate, | Of indifferent con- sistence, neither too thicke nor too thin, | Of Colour red rosy or Crim- son, | Of Taste sweete, | Of such use, that it cheerly serves for the nourishment of the fleshy parts, and caried by the vessels im- parts heate to the whole body. |
| Phlegme is | Of Nature watery, cold and moist, | Of Consistence liquid, | Of Colour white | Of Taste sweet, or rather un- savory, for we com- mend that water which is unsavory | Fit to nourish the braine and all the other cold and moist parts, to temper the heate of the blood, and by its slipperines to helpe the moti- on of the joynts. |
| Choler is | Of Nature fiery, hot and drie, | Of Consistence Thin, | Of Colour yellow, or pale, | Of Taste bitter, | It provoketh the expulsive faculty of the guts, attenuates the Phlegme clea- ving to them, but the Alimentary is fit to nourish the parts of like tem- per with it. |
| Melan- choly is. | Of Nature earthly, cold and dry. | Of Consistence grosse and muddy, | Of Colour blackish | Of taste acide, sour or biting. | Stirs up the Ap- petite, nourishes the spleene and all the parts of like temper to it, as the Bones. |

Bloud hath its neereſt matter from the better portion of the *Chylus*: and being begunne to be laboured in the veines, at length gets forme and perfection in the liver; but it hath its remote matter from meates of good digestion and quality, seasonably eaten after moderate exercise; but for that, one age is better than another, and one time of the yeare more convenient than another. For bloud is made more copiously in the Spring, because that season of the yeare comes neereſt to the temper of the bloud, by reason of which the bloud is rather to be thought temperate, than hot and moist, for that *Galen* makes the Spring temperate, and besides, at that time bloud-letting is performed with the best successe: youth is an age very fit for the generation of bloud; or by *Galen's* opinion, rather that part of life, that continues from the 25. to the 35. yeare of our age. Those in whom this humor hath the dominion, are beautified with a fresh and roſie colour, gentle and well natured, pleasant, merry, and facetious. The generation of Phlegme is not by the imbecillity of heat, as some of the ancients thought; who were perswaded that choler was caused by a raging, bloud by a moderate, and phlegme and melancholy, by a remiſſe heate. But that opinion is full of manifest errour: for if it be true that the *Chylus* is laboured and made into bloud in the same part, and by the same fire, that is, the liver; from whence in the same moment of time should proceed that strong and weak heate, seeing the whole masse of the bloud different in its foure essentiall parts, is perfected and made at the same time, and by the same equall temper of the same part, action, and bloud-making facultie; therefore from whence have we this varietie of humors? From hence, for that those meates by which wee are nourished, enjoy the like condition that our bodies doe, from the foure Elements, and the foure first qualities; for it is certaine, and wee may often observe in what kind soever they be united or joyned together, they retaine a certain hot portion imitating the Fire, another cold, the water; another dry, the earth, and lastly, another moist like to the Aire. Neither can you name any kinde of nourishment, how cold soever it be, not Lettuce it selfe, in which there is not some fiery force of heate. Therefore it is no marvell, if one and the same heate working upon the same matter of *Chylus*, varying with so great dissimilitude of substances, doe by its power produce so unlike humors, as from the hot, Choler; from the cold, Phlegme; and of the others, such as their finery of temper will permit.

Lib. I. de temp.

One and the same heate is the efficient cause of all humors at the same time.

The heate of the Sunne alone doth melt waxe and harden clay.

The divers condition of the matter alone, is the cause of varietie.

The effects of Phlegme.

There is no cause that any one should thinke that varietie of humors to be caused in us, rather by the diversity of the active heate, than waxe and a flint placed at the same time, and in the same situation of climate and soile, this to melt by the heat of the Sunne, and that scarce to waxe warme. Therefore that diversitie of effects is not to be attributed to the force of the efficient cause, that is, of heate, which is one and of one kinde in all of us; but rather to the materiall cause, seeing it is composed of the conflux, or meeting together of various substances, gives the heate leave to worke, as it were out of its store, which may make and produce from the hotter part thereof Choler, and of the colder, and more rebellious Phlegme. Yet I will not deny but that more Phlegme, or Choler may be bred in one and the same body, according to the quicker, or slower provocation of the heate; yet nevertheless it is not consequent, that the originall of Choler should be from a more acride, and of Phlegme from a more dull heat in the same man. Every one of us naturally have a simple heate, and of one kinde, which is the worker of diverse operations, not of it selfe, seeing it is alwayes the same, and like it selfe, but by the different fitnessse, pliability, or resistance of the matter on which it workes. Wherefore phlegme is generated in the same moment of time, in the fire of the same part, by the efficiency of the same heate, with the rest of the bloud, of the more cold, liquide, crude, and watery portion of the *Chylus*. Whereby it comes to passe, that it shewes an expresse figure of a certaine rude or unperfect bloud, for which occasion nature hath made it no peculiar receptacle, but would have it to run friendly with the bloud in the same passages of the veines, that any necessitie happening by famine, or indigency, and in defect of better nourishment, it may by a perfecter elaboration quickly assume the forme of bloud. Cold & rude nourishment make this humor to abound principally in winter, and in those which incline to old age, by reason of the similitude which phlegme hath with that season and age. It makes a man drowsie, dull, fat, and swollen up, and hasteneth gray haire. Choler

is as it were a certaine heate and fury of humors, which generated in the liver, together with the blood is carried by the veines and arteries through the whole body. That of it which abounds, is sent, partly into the guts, and partly into the bladder of the gall; or is consumed by transpiration, or sweates; It is somewhat probable that the Arteriall blood is made more thinne, hot, quicke and pallid, than the blood of the veines, by the commixture of this Alimentarie choler. This humor is chiefly bred and expeld in youth, and acrid and bitter meates give matter to it: but great labours of bodie and minde give the occasion. It maketh a man nimble, quicke, ready for all performance, leane, and quicke to anger, and also to concoct meates. The Melancholicke humor, or Melancholy, being the grosser portion of the blood, is partly sent from the Liver to the Spleene to nourish it, and partly carried by the vessels into the rest of the body, and spent in the nourishment of the parts endued with an earthly drinesse; it is made of meates of grosse juyce, and by the perturbations of the minde, turned to feare and sadnesse. It is augmented in Autumne, and in the first and crude old age; it makes men sad, harsh, constant, froward, envious and fearefull. All men ought to thinke, that such humors are wont to move at set houres of the day, as by a certaine peculiar motion or tide. Therefore the blood flowes from the ninth houre of the night, to the third houre of the day; then Choler to the ninth of the day; then Melancholy to the third of the night, the rest of the night that remaines, is under the dominion of Phlegme. Manifest examples hereof appeares in the French-Poxe. From the elaborate and absolute masse of the blood (as we said before) two kindes of humors, as excrements of the second concoction, are commonly and naturally separated, the one more grosse, the other more thinne. This is called either absolutely choler, or with an adjunct, yellow choler. That is called Melancholy, which drawne by the Spleene in a thinner portion, and elaborate by the heate of the Arteries, which in that part are both many and large, becomes nourishment to the part; the remnant thereof is carried by the veiny vessell into the orifice of the ventricle, whereby it may not cause, but whet the appetite, and by its astringent strengthen the actions thereof. But yellow Choler drawne into the bladder of the gall, remains there so long, till being troublesome, either in quantitie or qualitie, it is excluded into the guts, whereby it may cast forth the excrements residing in them; the expulsive faculcie being provoked by its acrimony, and by its bitternesse kills the wormes that are bred there. This same humor is accustomed to die the urine of a yellow colour. There is another serous humor, which truly is not fit to nourish, but profitable for many other things, which is not an excrement of the second, but of the first concoction. Therefore nature would that mixed with the *Chylus*, it should come to the Liver, and not be voided with the excrements, whereby it might alay the grossenesse of the blood, and serve it for a vehicle; for otherwise the blood could scarce passe through the capillary veines of the Liver, and passing the sinous and gibbous parts thereof, come to the hollow veine. Part of this serous humor separated together with the blood which serves for the nourishment of the Reines, and straight carried into the bladder, is turned into that urine which we daily make; the other part therefore carried through all the body together with the blood, performing the like duty of transportation, is excluded by sweats into which it degenerates. Besides the forenamed, the Arabians have mentioned foure other humors, which they terme Alimentary and secondary, as being the next matter of nourishment, as those foure the blood contains, the remote. They have given no name to the first kinde, but imagine it to be that humor, which hangs ready to fall like to little drops in the utmost orifices of the veines. They call the second kinde, * Dew; being that humor, which entred already into the substance of the part, doth moisten it. The third they call by a Barbarous name *Cambium*, which already put to the part to be nourished, is there fastened. The fourth named *Gluten*, or *Glew*, is onely the proper and substance-making humidity of the simular parts, not their substance. The distinction of the degrees of nutrition recited by *Galen* in his Bookes of Naturall faculties, answer in proportion to this distinction of humors. The first is, that the blood flow to the part that requires nourishment; then that being there arrived, it may be agglutinated; then lastly, that having lost its former forme of nourishment, it may be assimilated.

The effects of Choler.

The effects of Melancholy.

What motions are in each quarter of the body.

The Melancholy humor doth not cause, but whet the appetite.

A Serous or wheylike humor.

Secondary humors.

* Ros.

Those

Humors a-
gainst nature.

Those humors are against nature, which being corrupted, infect the body and the parts in which they are contained by the contagion of their corruption, retaining the names and titles of the humors, from whose perfection and nature they have revolted, they all grow hot by putrification, although they were formerly by their own nature cold. And they are corrupted, either in the veines onely, or within and without the veines; In the veines Bloud and Melancholy; but both without and within the veines, Choler and Phlegme. When bloud is corrupted in its thinner portion, it turnes into choler, when in its thicker, into Melancholy; for the bloud becomes faultie two manner of waies, either by the corruption of its proper substance by putrification, or by admixtion of another substance by infection. The Melancholy humor which is corrupted in the veines, is of three sorts: the 1. is of a Melancholy juice putrifying, and by the force of a strange heate, turned as it were into ashes, by which it becomes adust, acride and biting. The other ariseth from that Choler which resembles the yolkes of egges, which by adustion becomes lecke-coloured, then æruginous, or of a blewish greene, then red, and lastly blacke, which is the very worst kinde of Melancholy, hot, maligne, eating and exulcerating, and which is never seene or voided with safetie. The third comes from Phlegme putrifying in the veines, which first degenerates into false Phlegme, but straight by the strength of extraneous heate degenerates into Melancholy.

Into what
humors the
bloud when
it corrupts
doth degene-
rate.
The Melan-
choly humor
corrupted, is
of three kinds.

In the veines,
and is either

Acide and very crude, as which hath had none or very litle impressiō of heate, but that which it first had in the stomacke.

Salt, which is bred by the sweet, putrifying and adust, or mixture of adust and salt particles.

Phlegme not naturall
is bred, either

Waterish, as is that thinne moisture which distills from the braine by the nostrills.

Mucous, as when that waterish is thickened into filth by the helpe of some accidentall or small heate.

Glassie, or * *Albuminous*, resembling molten glassie, or rather the white of an egge, and is most cold.

Gypsea, or Plaster-like, which is concrete into the hardnesse and forme of chalke, as you may see in the joints of the fingers in a knotty goutte, or in inveterate distillations upon the Lungs.

or without
the veines,
and is of 4.
sorts, either

In the veines, as the * vitelline (like in consistence to the yolke of a raw egge) which the acrimony of strange heate breeds of yellow choler, which same in diseases altogether deadly, degenerates into greene, æruginous, and lastly into a blue, or colourlike that which is dried by woad.

Choler not naturall
is bred, either

Or in the capacite of
the upper belly as the
ventricle, and this is
of five kinds

The first is called *Porracea* or leek-coloured, resembling the juyce of a lecke in greenenesse.

The 2. *æruginesa*, or æruginous, like in colour to verdigreasse.

The 3. blewish, or woad-coloured, like the colour died by woad.

The 4. red, differing in this from bloud, whose colour it imitates, that it never cometh into knots, or clods like bloud.

The 5. very red, generated by the excessse of the former, which causeth burning feavers.

* *Albuminea*.

* *Vitellina*.

The

The kinds of such choler, are often cast forth by vomit in diseases, the strength of the disease being past; being troublesome to the parts through which they are evacuated, by their bitterneſſe, acrimony and biting.

The Signes of a Sanguine Person.

I thinke it manifest, because the matter and generation of flesh is principally from blood, that a man of a fleshy, dense, and solid habite of body, and full of a sweete and vaporous juice, is of a Sanguine complexion. And the same party hath a flourishing and roaſie colour in his face, tempered as with an equall mixture of white and red; of white, by reason of the skinned lying utmost; of red, because of the blood spread underneath the skinned; for alwayes such as the humor is, such is the colour in the face. In manners hee is courteous, gentle, easie to be spoken to, not altogether estranged from the love of women, of a lovely countenance and smoothe forehead, ſeldome angry, but taking all things in good part; for as the inclination of humors is, so also is the disposition of manners. But blood is thought the mildest of all humors, but the strong heate of the inward parts maketh him to eate and drinke freely. Their dreames are pleasant, they are troubled with diseases arising from blood, as frequent Phlegmons, and many Sanguine puſtles breaking through the skinned, much bleeding, and menſtruous fluxes. Wherefore they can well endure blood-letting, and delight in the moderate use of cold and drie things; and lastly, are offended by hot and moist things. They have a great and strong Pulse, and much urine in quantitie, but milde of qualitie, of an indifferent colour and substance.

Such as the humor is, such is the colour.

The manners and diseases of Sanguine persons.

The Signes of a Cholericke Person.

Cholericke men are of a pale or yellowish colour, of a leane, slender and rough habit of body, with faire veines and large Arteries, and a strong and quicke Pulse: their skinned being touched, feels hot, dry, hard, rough and harsh, with a pricking and acrid exhalation which breathes forth of their whole body. They cast forth much choler by ſtoole, vomite and urine. They are of a quicke and nimble wit, stout, hardy and sharpe vindicators of received injuries, liberall even to prodigalitie, and somewhat too desirous of glory. Their sleepe is light, and from which they are quickly waked; their dreames are fiery, burning, quicke and full of furie; they are delighted with meates and dringes which are somewhat more cold and moist, and are ſubject to Tertian and burning feavers, the Phrenſie, Jaundise, Inflammations, and other cholericke puſtles, the Laſke, Bloody fluxe, and bitterneſſe of the mouth.

Cholericke are not commonly fat.

The manners and diseases of Cholericke persons.

The Signes of a Phlegmaticke Person.

Those in whom Phlegme hath the dominion, are of a whitish coloured face, and sometimes livide and swollen, with their body fat, soft and cold to touch.

They are moleſted with Phlegmaticke diseases, as oedematous tumors, the Dropſie, Quotidian feavers, falling away of the haire, and catarrhes falling downe upon the Lungs, and the *Aspera Arteria*, or Wheaſon; they are of a ſlow capacitie, dull, ſlothfull, drouſie, they doe dreame of raines, ſnowes, floods, ſwimming, and ſuch like, that they often imagine themſelves overwhelmed with waters; they vomite up much waterie, and Phlegmaticke matter, or otherwiſe ſpit and evacuate it, and have a ſoft and moiſt tongue.

The manners and diseases of Phlegmaticke persons.

And they are troubled with a dogge-like hunger, if it at any time ſhould happen that their inſipide Phlegme become acide; and they are ſlow of digeſtion, by reaſon of which they have great ſtore of cold and Phlegmaticke humors, which if they be carried downe into the windings of the cholicke-gut, they cauſe murmuring and noiſe, and ſometimes the Cholicke.

From whence noiſe, or rumbling in the belly proceeds

For much wind is eaſily cauſed of ſuch like Phlegmatick excrements wrought upon by

by a small and weake heate, such as Phlegmaticke persons have, which by its naturall lightnesse is diversly carried through the turnings of the guts, and distends and swells them up, and whiles it strives for passage out, it causeth murmurings and noises in the belly, like winde breaking through narrow passages.

Signes of a Melancholike person.

Diseases familiar to Melancholy persons.

THe face of Melancholy persons is swart, their countenance cloudy and often cruell, their aspect is sad and froward; frequent Schirrhus, or hard swellings, tumors of the spleene, Hæmorrhoids, *Varices* (or swollen veines) *Quartaine* feavers, whether continuall or intermitting, *Quintaine*, *Sextaine*, and *Septimane* feavours; and to conclude, all such wandering feavers or agues set upon them. But when it happens the Melancholy humor is sharpened, either by adustion, or commixture of Choler, then Tetters, the blacke Morpew, the Cancer simple and ulcerated, the Leprous and filthy scabbe, sending forth certaine scaly and branlike excrescences, (being vulgarly called Saint *Maries* evill) and the Leprosie it selfe invades them: They have small veines and arteries, because coldnesse hath dominion over them, whose proper tie is to straiten, as the qualitie of heate is to dilate. But if at any time their veines seeme bigge, that largenesse is not by reason of the laudable blood, contained in them, but from much windinesse; by occasion whereof it is somewhat difficult to let them blood; not onely because that when the veine is opened, the blood flowes slowly forth, by reason of the cold slownesse of the humors; but much the rather, for that the veine doth not receive the impression of the Lancet, sliding this way and that way, by reason of the windinesse contained in it, and because that the harsh drinessse of the upper skinne, resists the edge of the instrument. Their bodies seeme cold and hard to the touch, and they are troubled with terrible dreames, for they are observed to seeme to see in the night Devils, Serpents, darke dens and caves, sepulchers, dead corpses, and many other such things full of horror, by reason of a blacke vapour, deversly moving and disturbing the Braine, which also wee see happens to those, * who feare the water, by reason of the biting of a mad dogge. You shall finde them froward, fraudulent, parsimonious, and covetous, even to basenesse, slow speakers, fearefull, sad, complainers, carefull, ingenious, lovers of solitarinesse, man-haters, obstinate maintainers of opinions once conceived, slow to anger, but angered not be pacified. But when Melancholy hath exceeded natures and its owne bounds, then by reason of putrefaction and inflammation all things appeare full of extreme fury and madnesse, so that they often cast themselves headlong downe from some high place, or are otherwise guilty of their owne death, with feare of which notwithstanding they are terrified.

From or by what their veines are swollen.

Their dreames

* *Hydrophobi.*

Their manners.

From whence the change of the native temper.

How one may become cholericke.

How melancholick.

How Phlegmaticke.

But we must note that changes of the native temperament, doe often happen in the course of a mans life, so that hee which a while agoe was Sanguine, may now bee Cholericke, Melancholick, or Phlegmatick; not truly by the changing of the blood into such humors, but by the mutation of Diet, and the course or vocation of life. For none of a Sanguine complexion but will prove Cholericke if he eate hot and drie meates, (as all like things are cherished and preserved by the use of their like, and contraries are destroyed by their contraries) and weary his body by violent exercises, and continuall labours; and if there be a suppression of Cholericke excrements, which before did freely flow, either by nature, or art. But whosoever feeds upon meates generating grosse blood, as Beefe, Venison, Hare, old Cheese, and all salt meates, he without all doubt sliding from his nature, will fall into a Melancholy temper; especially if to that manner of diet, he shall have a vocation full of cares, turmoiles, miseries, strong and much study, carefull thoughts and feares; and also if he sit much, wanting exercise, for so the inward heate as it were defrauded of its nourishment, faints, and growes dull, whereupon grosse and droisie humors abound in the body. To this also the cold and drie condition of the place, in which we live, doth conduce, and the suppression of the Melancholy humor accustomed to be evacuated by the Hæmorrhoides, courses, and stools.

But he acquires a Phlegmaricke temper whosoever useth cold & moist nourishment, much

much feeding, who before the former meate is gone out of the belly, shall stuffe his paunch with more, who presently after meate runs into violent exercises, who inhabite cold and moist places, who leade their life at ease in all idlenesse; and lastly, who suffer a suppression of the Phlegmaticke humour accustomely evacuated by vomite, cough, or blowing the nose, or any other way either by nature or arte. Certainly it is very convenient to know these things, that we may discern if any at the present be Phlegmaticke, Melancholicke or of any other temper, whether he be such by nature, or necessary. Having declared those things which concerne the nature of Temperaments, and deferred the description of the parts of the body to our Anatomy, we will begin to speake of the faculties governing this our life, when first we shall have shoven by a practicall demonstration of examples, the use and certainty of the aforesaid rules of Temperaments.

CHAP. VII.

Of the Practise of the aforesaid rules of Temperaments.

THat we may draw the Theoricke of the Temperaments into practise, it hath seemed good for avoyding of confusion, which might make this our Introduction seeme obscure, if we would prosecute the differences of the Temperaments of all men of all Nations, to take those Limits, which nature hath placed in the world; as South, North, East and West, and as it were the Center of those bounds, that the described variety of Tempers, in colour, habit, manners, studies, actions, and forme of life of men that inhabit those Regions scituated so farre distant one from another, may be as a sure rule, by which we may certainly judge of every mans temperature in particuler, as he shall appeare to be nearer, or further off from this, or that region. Those which inhabite the South as the Affricans, Æthiopians, Arabians and Egyptians, are for the most part deformed, leane, dusky coloured and pale, with blacke eyes and great lippes, curled haire, and a small and shrill voyce. Those which inhabite the Northren parts as the Scythians, Muscovites, Polonians and Germanes, have their faces of colour white, mixed with a convenient quantity of blood, their skin soft and delicate, their haire long, hanging downe and spreading abroad, and of a yellowish, or reddish colour; of stature they are commonly tall, & of a well proportioned, fat and compact habite of body, their eyes gray, their voyce strong, loud and bigge. But those who are scituated betweene these two former, as the Italians and French, have their faces somewhat swart, are well favoured, nimble, strong, hairy, slender, well in flesh, with their eyes resembling the colour of Goates-eyes, and often hollow eyed, having a cleere shrill and pleasing voyce.

The Southerne people are exceeded so much by the Northerne in strength and ability of body, as they surpass them in witt and the faculties of the minde. Hence is it you may reade in Histories, that the Scythians, Gothes and Vandals vexed Affricke and Spaine with infinite incursions, and most large and famous Empires have beene founded from the North to the South; but few or none from the South to the North. Therefore the Northren people thinking all right and law to consist in Armes, did by Duell onely determine all causes and controversies arising amongst the inhabitants, as wee may gather by the ancient lawes, and customes of the Lumbards, English, Burgonians, Danes and Germanes; and we may see in Saxo the Grammarian that such a law was once made by Fronto king of Denmarke. The which custome at this day is every where in force amongst the Muskovits. But the Southerne people have alwayes much abhorred that fashion, and have thought it more agreeable to Beasts than Men. Wherefore we never heard of any such thing used by the Assyrians, Egyptians, Persians or Iewes. But moved by the goodnes of their wit, they erected Kingdomes and Empires by the onely helpe of Learning and hidden sciences. For seeing by nature they are Melancholicke by reason of the drynesse of their temperature, they willingly addict themselves to

Four bounds
or Regions of
the world.

The forces of
temperatures
in particulars.
The temperas-
ture of the
Southerne
people.
Of the Nor-
therne.

The Southern
people prevails
in wit, the
Northerne in
strength.

solitarinesse

The Southern
people learned
and religious.

The Northern
famous War-
riors, and
Artificers.

The endow-
ments of such
as inhabite be-
tween them.

The Northern
know how to
overcome, but
not how to
use the victory

The aboun-
dance of coun-
sellors and
Lawyers from
France and
Italy.

The manners
of the Eastern
people

The manners
of the Western
people.

The East
winde health-
full.

The Northern
people great
eaters and
drinkers.

solitarineffe and contemplation, being endued with a singular sharpnesse of wit. Wherefore the *Æthiopians*, *Egyptians*, *Africans*, *Iewes*, *Phœnicians*, *Persians*, *Assyrians*, and *Indians*, have invented many curious sciences, revealed the Mysteries and secrets of Nature, digested the *Mathematiques* into order, observed the motions of the heavens, and first brought in the worship and religious sacrifices of the gods: Even so farre that the *Arabians* who live onely by stealth, and have onely a Waggon for their house, do boast that they have many things diligently and accurately observed in *Astrology* by their Ancestors, which every day made more accurate and copious, they, as by an hereditary right, commend to posterity, as it is recorded by *Leo* the *Africane*. But the Northern people, as the *Germanes*, by reason of the abundance of humours and blood, by which the minde is as it were oppressed, apply themselves to workes obvious to the senses, and which may be done by the hand. For their minds oppressed with the earthly masse of their bodies, are easily drawne from heaven and the contemplation of Celestiall things, to these inferior things, as to find out Mines by digging, to buy and cast mettals, to draw and hammer out workes of Iron, Steele and brasse. In which things they have proved so excellent, that the glory of the Invention of Guns and Printing belongs to them.

The people who inhabite the middle regions betweene these, are neither naturally fit for the more abstruse sciences, as the Southerne people are, nor for Mechanicke workes, as the Northern, but intermeddle with civil affaires, commerce and Merchandizing. But are endued with such strength of body as may suffice to avoid and delude the crafts and arts of the Southerne Inhabitants; and with such wisdom as may be sufficient to restrain the fury and violence of the Northern. How true this is, any one may understand by the example of the *Carthaginians* and *Africans*, who when they had held *Italy* for some yeares by their subtille counsels, crafty sleights and devices; yet could not escape but at the length their Arts being deluded, and they spoiled of all their fortunes, were brought in subjection to the Romans. The *Gothes*, *Hunnes* and other Northern people have spoiled & overrun the *Romane Empire* by many incursions and inroades, but destitute of counsell & providence, they could not keepe those things which they had gotten by Armes and valour. Therefore the opinion of all Historians is agreeing in this, that good lawes, the forme of governing a Commonwealth, all politicke ordinances, the Arts of disputing and speaking, have had their beginning from the *Greeks*, *Romans* and *French*. And from hence in times past and at this day a greater number of Writers, Lawyers and Counsellors of State have sprung up, than in all the world besides. Therefore that we may attribute their gifts to each Region, we affirme that, The Southerne people are borne and fit for the studies of learning; the Northern for warres, and those which be betweene them both for Empire and rule. The Italian is naturally wise, the Spaniard grave and constant; the French quicke and diligent, for you would say he runs when he goes, being compared to the slow and womanish pace of the Spaniard, which is the cause that Spaniards are delighted with French servants for their quicke agillity in dispatching busines. The Easterne people are specially endued with a good, firme and well tempered wit, not keeping their counsels secret and hid. For the haste is of the nature of the Sunne, and that part of the day which is next to the rising of the Sunne is counted the right-side and stronger; and verily in all living things the right side is alwayes the more strong and vigorous. But the Western people are more tender and effeminate, and more close in their carriage and minde, not easily making any one partaker of their secrets. For the West is, as it were subject to the Moone, because at the change it alwayes inclines to the West, wherby it happens, that it is reputed as no Æternall, sinister and opposite to the East; and the West is lesse temperate and wholesome. Therefore of the windes none is more wholesome than the Eastwinde which blowes from the west with a most fresh and healthfull gale, yet it feldome blowes, and but onely at Sun-set.

The Northern people are good eaters, but much better drinkers, witty when they are a litle moistened with wine, and talkers of things both to be spoken and concealed, not very constant in their promises and agreements, but principall keepers and preservers of shamefastnes and chastity, farre different from the inhabitants of the South, who

who are wonderfull sparing, sober, secret and subtle, and much addicted to all sorts of wicked Lust. *Aristotle* in his Problemes saith that those nations are barbarous and cruell, both which are burnt with immoderate heate, and which are oppressed with excessive cold, because a soft temper of the Heavens softens the Manners and the minde. Wherefore both, as well the Northerne, as Scythians and Germans; and the Southerne, as Africans are cruell; but these have this of a certaine naturall stourne, and souldierlike boldnes, and rather of anger, than a wilfull desire of revenge; because they cannot restrain by the power of reason the first violent motions of their anger by reason of the heat of their blood. But those of a certaine inbred and inhumane pravity of manners, wilfully and willingly premeditating they performe the workes of cruelty, because they are of a sad and melancholy nature. You may have an example of the Northerne cruelty from the Transilvanians against their seditious Captaine *George*, whom they gave to be torne in peeces alive and devoured by his Soldiers, (being kept fasting for three dayes before for that purpose) who was then unbowelled, and roasted, and so by them eaten up. The Cruelty of *Hannibal* the Captaine of the Carthaginians may suffice for an instance of the Southerne cruelty. He left the Romane Captives wearied with burdens and the length of the way, with the soles of their feet cut off; But those he brought into his tents, joyning brethren and kinsmen together he caused to fight, neither was satisfied with blood before he brought all the victors to one man. Also we may see the cruell nature of the Southerne Americans, who dip their children in the blood of their slaine enemies, then sucke their blood, and banquet with their broken and squeased Limbs.

who are to be counted Bar-
barous.

The Northerne
and Southerne
have each their
Cruelties.

Valer. Max.
lib. 9. cap. 2.

And as the Inhabitants of the South are free from divers Plethoricke diseases, which are caused by abundance of blood, to which the Northerne people are subject, as Feavers, Defluxions, Tumors, Madnesse with laughter which causeth those which have it to leape and dance (The people commonly terme it *S. vitus his Evill*) which admits of no remedy but Muticke: So they are often molested with the Frensie invading with madnesse and fury; by the heat whereof they are often so ravished and carried besides themselves that they foretell things to come; they are terrified with horrible dreames, and in their fits they speake in strange and forraigne tongues, but they are so subject to the scurfe and all kind of scabbs and to the Leprosie as their homebred disease, that no houses are so frequently mett withall by such as travell through either of the Mauritania's, as Hospitals provided for the Lodging of Lepers.

The diseases
of the Sou-
therne people.

Those who inhabit rough and Mountainous places, are more brutish, tough & able to endure labour: but such as dwell in plaines, especially if they be moorish, or fennish are of a tender body, and sweate much with a litle labour; the truth of which is confirmed by the Hollanders and Frizlanders. But if the plaine be such as is scorched by the heate of the Sunne, and blowne upon by much contrariety of windes, it breeds men who are turbulent, not to be tamed, desirous of sedition and novelty, stubborne, impatient of servitude, as may be perceived by the sole example of the inhabitants of Narbona province of France.

Mountainers.

Those who dwell in poore and barren places are commonly more witty and diligent and most patient of labours; the truth of which the famous witts of the Athenians, Ligurians and Romanes. and the plaine country of the Boeotians in Greece, of the Campanians in Italy, and of the rest of the inhabitors adjoyning to the Ligurian sea, approves.

CHAP. VIII.

Of the Faculties.



Faculty is a certaine power, and efficient cause, proceeding from the temperament of the part, and the performer of some actions of the body. There are three principall Faculties governing mans body as long as it enjoys its integrity;

What a faculty
is.
3. Faculties.

tegrity; the Animall, Virall and Naturall. The Animall is seated in the proper temperament of the Braine, from whence it is distributed by the Nerves into all parts of the body which have sense and motion. This is of three kinds, for one is Moving, another sensative; the third principall The sensative consists in the five externall senses, sight, hearing, taste, smell and touch. The Moving principally remaines in the Muscles and nerves, as the fit instruments of voluntary motion. The Principall comprehends the Reasoning faculty, the Memory and Fantasie. *Galen* would have the Common or inward sense to be comprehended within the compasse of the Fantasie, although *Aristotle* distinguisheth betweene them.

The triple use
of the Pulse.

The naturall
faculty is three-
fold.

What Nutri-
tion is.

Four other
faculties attend
upon the nour-
ishing faculty

The necessity
of the reten-
tive faculty.

Two excre-
ments of every
concoction.

The Vitall abides in the Hart, from whence heat and life is distributed by the Arteries to the whole body: this is principally hindered in the diseases of the Brest; as the Principall is, when any disease assailes the Braine; the prime action of the vitall faculty is Pulsation, and that continued agitation of the Heart and Arteries, which is of threefold use to the body: for by the dilatation of the Heart and Arteries the vitall spirit is cherished by the benefit of the Aire which is drawne in; by the contraction thereof the vapours of it are purged and sent forth, and the native heat of the whole body is tempered by them both.

The last is the Naturall faculty which hath chosen its principall seate in the Liver, it spreads or carries the nourishment over the whole body; but it is distinguished into 3. other faculties; The Generative which serves for the generation and forming of the Issue in the wombe; the Growing or increasing facultie which flourisheth from the time the Issue is formed, untill the perfect growth of the solid parts into their full dimensions of Length, height and breadth. The nourishing facultie which as servant to both the other repaires and repays the continuall efflux, and waste of the threefold substance; for Nutrition is nothing else but a replenishing, or repairing whatsoever is wasted or emptied This nourishing facultie endures from that time the Infant is formed in the wombe untill the end of life. It is a matter of great consequence in Physicke to know the 4 other faculties, which as servants attend upon the nourishing faculty; which are the Attractive, Retentive, Digestive, and Expulsive faculty. The Attractive drawes that juice which is fit to nourish the body, that I say which by application may be assimilated to the part. This is that faculty which in such as are hungry drawes downe the meat scarce chewed, and the drinke scarce tasted, into the gnawing and empty stomacke. The Retentive faculty is that which retaines the nourishment once attracted untill it be fully laboured and perfectly concocted; And by that meanes it yeelds no small assistance to the Digestive faculty. For the naturall heat cannot performe the office of concoction, unless the meat be embraced by the part, and make some stay therein. For otherwise the meate carryed into the stomacke never acquires the forme of *Chylus*, unless it stay detained in the wrinkles thereof, as in a rough passage, untill the full time of *Chylification*. The Digestive faculty assimilates the nourishment, being attracted and detained, into the substance of that part whose Faculty it is, by the force of the inbred heate & proper disposition or temper of the part. So the stomacke plainly changes all things which are eat and drunke into *Chylus*, & the Liver turnes the *Chylus* into blood. But the Bones & Nerves convert the red and liquid blood which is brought down unto them by the capillary or small veins, into a white & solid substance. Such concoction is far more laborious in a Bone and nerve, than in the Musculous flesh. For the blood being not much different from its nature, by a light change and concretion turnes into flesh. But this Concoction will never satisfie the desire of Nature and the parts, unless the nourishment purged from its excrements, put away the filth and drosse, which must never enter into the substance of the part. Wherefore there do not onely two sorts of excrements remaine of the first and second Concoction, the one thicke, the other thin, as we have said before; but also from the third Concoction which is performed in every part. The one of which we conceive onely by reason, being that which vanisheth into Aire by insensible Transpiration. The other is knowne sometimes by sweats, sometimes by a thicke fatty substance stayning the shirt; sometimes by the generation of haire and nailes, whose matter is from fuliginous and earthly excrements of the third Concoction. Wherefore the fourth Faculty was necessary which might yeeld no small helpe

helpe to nourishment; it is called the Expulsive, appointed to expell those superfluous excrements which by no action of heate, can obtaine the forme of the part. Such faculties serving for nutrition are in some parts two-fold; as some common, the benefit of which redounds to the whole body, as in the ventricle, liver & veines; Others onely attending the service of those parts in which they remaine, and in some parts all these 4. as well common as proper, are abiding and resident, as in those parts we now mentioned: some with the 4. proper have onely two common, as the Gall, Spleene, Kidnies and Bladder. Others are content onely with the proper, as the simular and Muscous parts, who if they want any of these 4. faculties, their health is decayed either by want of nourishment, an ulcer, or other wise. The like unnatural affects happen by the deficiency of just and laudable nourishment. But if it happen those faculties do rightly performe their duty, the nourishment is changed into the proper substance of the part, and is truly assimilated, as by these degrees. First it must flow to the part, then be joynted to it, then agglutinated, and lastly as we have said, assimilated. Now we must speake of the Actions which arise from the faculties.

The worke of the expulsive faculty.

By what degrees the nourishment is assimilated.

CHAP. IX.

Of the Actions.

AN Action or Function is an active motion proceeding from a faculty; for as the facultie depends on the Temperament, so the Action on the faculty, and the Act or worke depends upon the Action by a certaine order of consequence. But although that the words Actions and Act or worke are often confounded, yet there is this difference betweene them, as that the Action signifies the motion used in the performance of any thing; but the Act or worke, the thing already done and performed: for example, Nutrition and the Generating of flesh are naturall Actions; but the parts nourished, and a hollow ulcer filled with flesh are the workes of that motion, or action. Wherefore the Act ariseth from the Action, as the Action ariseth from the faculty, the integrity or perfection of the instruments concurring in both. For as, if the facultie be either defective, or hurt, no Action will be well performed: so unlesse the Instruments keepe their native and due conformitie (which is their perfect health, the operator of the Action proper to the instrument) none of those things, which ought to be, will be well performed. Therefore for the performance of blamelesse and perfect actions, it is fit a due conformity of the Instrument concur with the faculty. But Actions are two-fold; for they are either Naturall, or Voluntary. They are termed Naturall, because they are performed not by our will, but by their owne accord and against our will: As are that continuall motion of the Heart, the beating of the Arteries, the expulsion of the Excrements, and such other like which are done in us by the Law of Nature whether we will, or no. These Actions flow either from the Liver and veines, or from the Heart and Arteries. Wherefore we may comprehend them under the names of Naturall and Vitall Actions. For we must attribute his Action to each faculty, lest we may seeme to constitute an idle faculty, and no way profitable for use. The unvoluntary vitall actions are the dilatation & contraction of the Heart and Arteries, the which we comprehend under the sole name of the Pulse: by that they draw in, and by this they expell, or drive forth. The unvoluntary vitall actions be,

What an Action is,

An Action and an Act are different.

Natural Actions.

Generation } which proceed from the } Generative, }
Growth and } } Growing, and } facultie.
Nutrition } } Nourishing }

Generation is nothing else than a certaine producing, or acquiring of matter, and an introducing of a substantiall forme into that matter; this is performed by the assistance of 2. faculties; of the Altering which doth diversly prepare and dispose the seed and menstruous blood to put on the forme of a Bone, nerve, spleene, flesh and such

Generation what it is,

such like : of the Forming faculty which adorne with figure, site and composition, the matter ordered by so various a preparation.

What Growth is,

Growth is an enlarging of the solide parts into all the dimensions, the pristine and ancient forme remaining safe and sound in figure and solidity. For the perfection of every growth is judged onely by the solid parts; for if the body swell into a masse of flesh, or fat, it shall not therefore be said to be growne : but then onely when the solid parts doe in like manner increase, especially the bones, because the growth of the whole body followes their increase, even although at the same time it waxe leane, and pine away.

What Nutrition is,

Nutrition is a perfect assimilation of that nourishment which is digested, into the nature of the part which digests. It is performed by the assistance of 4. subsidiary or helping actions, Attractive, Retentive, Digestive and Expulsive.

Action voluntary,

* *Anima sensiens.*

The voluntary actions which we willingly performe, are so called, because we can at our pleasure hinder, stir up, slow or quicken them. They are three in generall, the sensitive, mooving, and principall Action. The sensitive * Soule comprehends all things in five senses, in Sight, Hearing, Smell, Taste and Touch. Three things must necessarily concur to the performance of them, the Organe, the *Medium* or meane, and the Object. The principall Organe, or Instrument, is the Animall spirit diffused by the nerves into each severall part of the body, by which such actions are performed. Wherefore for the present we will use the Parts themselves for their Organes. The Meane is a body, which carries the Object to the Instrument. The Object is a certaine externall quality, which hath power by a fit *Medium* or Meane to stirre up and alter the Organe. This will be more manifest by relating the particular functions of the senses by the necessary concurring of these three.

How sight is performed.

Sight, is an action of the seeing facultie, which is done by the Eye fitly composed of its coates and humors, and so consequently the Organically body of this Action. The Object is a visible quality brought to the Eye. But such an Object is two-fold; for either it is absolutely visible of its selfe, and by its owne Nature, as the Sun, the fire, the Moone and Starres : or desires as it were the helpe of another that it may be actually such, for so by the comming of light the colours, which were visible in power onely, being brought to the Eye doe seeme and appeare such as they actually are. But such Objects cannot arrive at the Eye, but thorough a cleere and illuminate *Medium*, as the Aire, Water, Glasse and all sorts of Cryshall.

How hearing.

The Hearing hath for its Organe the Eare and Auditory passage, which goes to the stony bone furnished with a Membrane investing it, an Auditory Nerve, and a certaine inward spirit there contained. The Object is every sound arising from the smitten or broken Aire, and the Collision of two bodies meeting together. The *Medium* is the encompassing Aire which carries the sound to the Eare.

How smelling

Smelling (according to *Galens* opinion) is performed in the Mamillary processes produced from the proper substance of the braine, and seated in the upper part of the nose : although others had rather smelling should be made in the very foremost ventricles of the braine. This Action is weake in man in comparison of other Creatures : the Object thereof is every smell, or fumide exhalation breathing out of bodies. The *Medium* by which the Object is carried to the noses of Men, Beasts and Birds, is the Aire, but to Fishes the Water it selfe. The Action of

How the taste

* *Sapor.*

taste is performed by the tongue being tempered well and according to nature, and furnished with a nerve spread over its upper part from the third and fourth conjugation of the Braine. The Object is * Taste, of whose nature and kindes we will treat more at large in our Antidotary. The *Medium* by which the Object is so carried to the Organ, that it may affect it, is either externall, or internall : The externall is that spittle which doth as it were anoynt and supple the tongue ; the internall is the Spongy flesh of the tongue it selfe, which affected with the quality of the Object doth presently so possesse the nerve that is implanted in it, that the kinde and quality thereof by the force of the spirit may be carryed into the common sense. All parts endued with a nerve enjoy the sense of touching, which is chiefly done, when a tractable quality doth

How touching.

penetrate

penetrate even to the true and nervous skinned, which lyeth under the Cuticle, or scarfe-skinned; we have formerly noted, that it is most exquisite in the skinned which invests the ends of the fingers. The Object is every tractable quality, whether it be of the first ranke of qualities, as Heate, Cold, Moisture, Drynesse, or of the second, as Roughnesse, Smoothnesse, Heavinessse, Lightnesse, Hardnesse, Softnesse, Rarity, Density, Friability, Vnctuosity, Grossenesse, Thinnesse. The *Medium* by whose procurement the instrument is affected, is either the skinned or the flesh interwoven with many Nerves.

The next Action, is that Motion, which by a peculiar name wee call voluntary; this is performed and accomplished by a Muscle, being the proper Instrument of voluntary Motion. Furthermore every motion of a member possessing a Muscle is made either by bending and contraction, or by extension. Although generally there be so many differences of voluntary motion, as there are kinds of site in place; therefore Motion is said to be made upward, downward, to the righthand, to the left, forward and backward; Hither are referred the many kinds of motions, which the infinite variety of Muscles produce in the body. Into this ranke of Voluntary Actions, comes Respiration, or breathing because it is done by the helpe of the Muscles; although it be chiefly to temper the heate of the Heart. For wee can make it more quicke, or slow as wee please, which are the conditions of a voluntary Motion.

Of action.

How Respiration may be, a voluntary motion.

Lastly, that wee may have somewhat in which wee may safely rest and defend our selves against the many questions which are commonly moved concerning this thing, we must hold, that Respiration is undergone and performed by the Animall faculty, but chiefly instituted for the vitall.

The Principall Action and prime amongst the Voluntary is absolutely divided in three, Imagination, Reasoning and Memory.

The third principall Action.

Imagination is a certaine expressing, and apprehension which discernes and distinguisheth betweene the formes and shapes of things sensible, or which are knowne by the senses.

Reasoning is a certaine judiciall estimation of conceived or apprehended formes or figures, by a mutuall collating, or comparing them together.

Memory is the sure storer of all things, and as it were the Treasure which the minde often unfolds and opens, the other faculties of the minde being idle and not employed. But because all the forementioned Actions whether they be Naturall, or Animall and voluntary, are done and performed by the helpe and assistance of the Spirits; Therefore now wee must speake of the Spirits.

CHAP. X.

Of the Spirits.



The spirit is a subtile and Aery substance, raised from the purer blood that it might be a vehicle for the faculties (by whose power the whole body is governed,) to all the parts, and the prime instrument for the performance of their office. For they being destitute of its sweet approach doe presently cease from action, and as dead do rest from their accustomed labours. From hence it is that making a variety of Spirits according to the number of the faculties, they have divided them into three; as one Animall, another Vitall, another Naturall.

What a spirit is,

Spirits threefold,

The Animall spirit,

The Animall hath taken his seate in the braine; for there it is prepared and made, that from thence conveyed by the Nerves it may impart the power of sense and Motion to all the rest of the members. An argument heereof is, that in the great Cold of Winter, whether by the intercepting them in their way, or by the concretion, or as it were freezing of those spirits,

the joynts grow stiffe, the hands numme, and all the other parts are dull, destitute of their accustomed agility of motion, and quicknesse of sense. It is called *Animall* not because it is the * Life, but the cheife and prime instrument thereof; wherefore it hath a most subtile and Aery substance: and enjoyes divers names according to the various condition of the Sensories or seates of the senses into which it enters; for that which causeth the sight, is named the Visive; you may see this by night, rubbing your eyes, as sparkling like fire. That which is conveyed to the Auditorie passage, is called the Auditive or Hearing; That which is carried to the Instruments of Touching, is termed the Tactive; and so of the rest.

How it is made. This Animall spirit is made and laboured in the windings and foldings of the veines and Arteries of the braine, of an exquisite subtile portion of the vitall brought thither by the *Carotida Arteria*, or sleepey Arteries, and sometimes also of the pure aire, or sweete vapour drawne in by the Nose in breathing. Hence it is, that with Ligatures we stoppe the passage of this spirit, from the parts we intend to cut off. An Humor which obstructs or stopps its passage, doth the like in Apoplexies and Palsies, whereby it happens that the members scituate under that place doe languish and seeme dead, sometimes destitute of motion, sometimes wanting both sense and motion.

The Vitall spirit. The Vitall spirit is next to it in dignitie and excellency, which hath its cheife mansion in the left ventricle of the Heart, from whence through the Channells of the Arteries it flowes into the whole body, to nourish the heate which resides fixed in the substance of each part, which would perish in short time unlesse it should be refreshed by heat flowing thither together with the spirit. And because it is the most subtile next to the Animall, Nature (lest it should vanish away) would have it contained in the Nervous coat of an Artery, which is five time more thicke, than the Coate of the veines, as *Galen*, out of *Herophilus*, hath recorded.

What the matter of it is. It is furnished with matter from the subtile exhalation of the blood, and that aire which we draw in breathing. Wherefore it doth easily and quickly perish by immoderate dissipations of the spirituous substance, and great evacuations; so it is easily corrupted by the putrifaction of Humors, or breathing in of pestilent aire and filthy vapours, which thing is the cause of the so suddaine death of those which are infected with the Plague. This spirit is often hindred from entering into some part by reason of obstruction, fulnesse, or great inflammations, whereby it followes that in a short space, by reason of the decay of the fixed and inbred heat, the parts doe easily fall into a Gangrene and become mortified.

There is some doubt of the Naturall spirit. The Naturall spirit (if such there be any) hath its station in the Liver and Veines. It is more grosse and dull than the other, and inferior to them in the dignitie of the Action, and the excellencie of the use. The use thereof is to helpe the concoction both of the whole body, as also of each severall part, and to carry blood and heate to them.

Fixed spirits. Besides those already mentioned, there are other spirits fixed and implanted in the simular and prime parts of the body, which also are naturall, and Natives of the same place in which they are seated and placed. And because they are also of an Aery and fiery nature, they are so joyned or rather united to the Native heate, that they can no more be separated from it, than flame from heate; wherefore they with these that flow to them are the principall Instruments of the Actions, which are performed in each severall part; And these fixed spirits have their nourishment and maintenance from the radicall and first bred moisture, which is of an Aery and oyle substance and is as it were the foundation of these Spirits and the inbred heat. Therefore without this moisture no man can live a moment. But also the Cheife Instruments of life are these Spirits together with the native heate. Wherefore this radicall Moisture being dissipated and wasted, (which is the seate, fodder and nourishment of the Spirits and heate) how can they any longer subsist and remaine? Therefore the consumption of the naturall heate followeth the decay of this sweet and substance-making moisture, and consequently death, which happens by the dissipating and resolving of naturall heate.

But

But since then these kinde of Spirits with the naturall heate, is contained in the substance of each simular part of our body (for otherwise it could not persist) it must necessarily follow, that there be as many kinds of fixed Spirits, as of simular parts. For because each part hath its proper temper and encrease, it hath also its proper spirit, and also its owne proper fixed and implanted heat, which heere hath its abode, as well as its Originall. Wherefore the spirit and heate which is seated in the bone, is different from that, which is impact into the substance of a Nerve, Veine or such other simular part; because the temper of these parts is different, as also the mixture of the Elements from which they first arose and sprung up. Neither is this contemplation of spirits of small account, for in these consist all the force and efficacy of our Nature.

These being by any chance dissipated or wasted, wee languish, neither is any health to be hoped for, the floure of life withering and decaying by little and little. Which thing ought to make us more diligent, to defend them against the continuall efflux of the threefold substance. For if they be decayed, there is left no proper Indication of curing the disease, so that we are often constrained, all other care laid aside, to betake our selves to the restoring and repaying the decayed powers. Which is done by meats of good juyce, easie to be concocted and distributed, good Wines and fragrant smells.

But sometimes these Spirits are not dissipated, but driven in and returned to their fountaines, and so both oppresse and are oppressed; whereupon it happens we are often forced to dilate and spread them abroad by binding and rubbing the parts. Hitherto wee have spoke of these things which are called Naturall, because we naturally consist of them; it remaines that we now say somewhat of their Adjuncts and associates by familiarity of Condition.

The use and necessity of the Spirits.

What the remedy for the dissipation of the Spirits.

What the remedy for oppression of the spirits is.

The Adjuncts and Associates to things Naturall, are

Age: of which, by reason of the similitude of the Argument, wee were constrained to speake when we handled the Temperatures.

Sexe.

Colour; of which we have already spoken.

The Conformation of the instrumentall parts;

Time, whose force we have also considered.

Region.

Order of Diet and Condition of life.

CHAP. XI.

Of the Adjuncts of things Naturall.

SExe is no other thing than the distinction of Male and Female, in which this is most observable, that for the parts of the body, and the fire of these parts, their is little difference betweene them; but the Female is colder than the Male. Wherefore their spermatieall parts are more cold, soft and moyst, and all there naturall actions lesse vigorous, and more depraved.

What sexe is.

The nature of weomen.

The Nature of Eunuches is to be referred to that of weomen, as who may seeme to have degenerated into a womanish nature, by deficiency of heate; their smooth body and soft and shrill voyce doe very much assimilate weomen. Notwithstanding you must consider that there be some Manly weomen, which their manly voyce and chinne covered with a little hairinesse doe argue; and on the contrary, there are some womanizing, or womanish men, which therefore we terme dainty and effeminate.

Of Eunuches.

Of Hermaphrodites.

Colour sheweth the wrapper of the Temperament

The Hermaphrodite as of a doubtfull nature and in the middle of both sexes seemes to participate of both Male and Female.

The Colour which is predominante in the habite and superficies of the body and lyes next under the skinne, shewes the temperament of what kinde soever it be; for as *Galen* notes in *Comment. ad Aphor. 2. sect. 1.* Such a colour appeares in us, as the contained humor hath. Wherefore if a rosie hew colour the cheekes, it is a signe the body abounds with blood, and that it is carryed abroad by the plenty of Spirits. But if the skinne be dyed with a yellow colour, it argues Choler, is predominante; if with a whitish and pallide hew, Phlegme; with a sable and dusky, Melancholy. So the colour of the excrements which are according to Nature is not of the least consideration. For thus, if an ulcer being broken send forth white matter, it argues the soundnesse of the part from whence it flowes; but if sanious or bloody, Greene, blackish, or of divers colours, it shewes the weaknes of the solide part, which could not assimilate by concoction the colour of the excrementitious humor. The like reason is of unnaturall Tumors; For, as the colour, so the Dominion of the Humor causing or accompanying the swelling commonly is.

The perfection of the organically parts consists in 4. things.

The Conformitie, and integrity of the Organically parts is considered by their figure, greatnesse, number, situation and mutuall connexion. Wee consider the figure, when wee say almost all the externall parts of the body are naturally round, not onely for shew, but for necessitie, that being smooth, and no way cornered, they should be lesse obnoxious to externall injuries; wee speake of Greatnesse, when wee say, some are large and thicke, some lancke and leane. But wee consider their number, when we observe some parts to abound, some to want, or nothing to be defective or wanting. Wee insinuate site and connexion when wee search, whether every thing be in its proper place, and whether they be decently fitted, and well joyned together.

We have handled the varyeties of the foure seasons of the yeare, when we treated of Temperaments. But the consideration of Region (because it hath the same judgment that the Aire) shall be referred to that disquisition, or enquiry which we intend to make of the Aire, amongst the Things not naturall.

Diet.

The Manner of life and order of Diet are to be diligently observed by us, because they have great power either to alter, or preserve the Temperament. But because they are of almost infinite variety, therefore they scarce seeme possible to fall into Arte, which may prosecute all the differences of Diet and vocations of life. Wherefore if the Calling of Life be laborious, as that of husbandmen, Marriners, and other such trades, it strengthens and dries the parts of the body. Although those which labour much about Waters, are most commonly troubled with cold and moyst diseases although they almost kill themselves with labour.

Againe, those which deale with Mettalls, as all sorts of Smithes, and those which cast and worke brasse, are more troubled with hotte diseases, as feavers. But if their Calling be such as they sit much, and worke all the day long sitting at home, as shoemakers; it makes the body tender, the flesh effeminate and causeth great quantity of excrements. A life as well idle and negligent in body, as quiet in minde, in all riotousnes and excesses of Dyet, doth the same. For from hence the body is made subject to the stone, gravell and Gout.

The common duties of an indifferent Diet.

That calling of life which is performed with moderate labour, clothing and dyet, seemes very fit and convenient to preserve the naturall temper of the body. The Ingenious Chirurgeon may frame more of himselfe that may more particularly conduce to the examination of these things. Therefore, the things naturall, and those which are neere or Neighbouring to them being thus briefly declared, the Order seemes to require that wee make enquiry of Things not Naturall.

CHAP. XII.

Of things not Naturall.

THe things which wee must now treat of, have by the latter Physitions beene termed, Not naturall; because they are not of the number of those which enter into the constitution, or composure of mans body; as the Elements, Humors, and all such things which we formerly comprehended vnder the name of Naturall: Although they be such as are necessary to preserve and defend the body already made and composed. Wherefore they were called by *Galen* Preservers, because by the due use of them the body is preserved in health. Also they may be called doubtfull; and Neuters, for that rightly and fitly used they keepe the body healthfull; but inconsiderately, they cause diseases. Whereby it comes to passe that they may be thought to pertaine to that part of Physicke which is of preserving health, not because some of these things should be absolutely and of their owne nature wholsome, and others unwholsome, but onely by this, that they are, or prove so by their convenient, or preposterous use. Therefore we consider the use of such like things from 4 conditions, quantitie, quality, occasion, and manner of using; if thou shalt observe these, thou shalt attaine and effect this, that those things which of themselves are as it were, doubtfull, shall bring certaine and undoubted health. For these 4. Circumstances doe so farre extend, that in them as in the perfection of Arte, the Rules which may be prescribed to preserve health are contained. But *Galen* in another place hath in 4. words comprehended these things not Naturall; as things Taken, Applied, Expelled, and to be Done. Things Taken are those which are put into the body, either by the mouth or any other way, as the Aire, meate and drinke. Things Applied are these which must touch the body, as the Aire now mentioned, affecting the body with a diverse touch of its qualities of heat, cold, moisture or drynesse. Expelled are, what things soever being unprofitable are generated in the body and require to be expelled. To be Done are labour, rest, sleepe, watching and the like. We may more distinctly and by expression of proper names revoke all these things to sixe; which are

Why they are called things not naturall.

Galen. 1. ad Glauconem.

1. de sanitat. tuenda.

Aire,
Meat and Drinke,
Labour and Rest,
Sleepe and Watching,
Repletion and Inanition, or things to be expelled, or retained and kept,
Perturbations of the Minde.

CHAP. XIII.

Of the Aire.

Aire is so necessary to life, that we cannot live a moment without it, if so be that breathing, and much more transpiration, be not to be separated from life. Wherefore it much conduceth to know, what Aire is wholsome, what unwholsome, and which by contrariety of qualities fights for the Patient against the disease; or on the contrary by a similitude of qualities shall nourish the disease, that if it may seeme to burden the Patient by increasing or adding to the disease, we may correct it by Arte. So in curing the wounds of the head, especially in Winter, we labour by all the means we may to make the aire warme. For cold is hurtfull to the Braine, Bones, and the wounds of these parts; and heat is comfortable and friendly. But also the aire being drawne into the body by breathing when it

How necessary for life the aire is.

is hotter than ordinarie, doth with a new warmth overheate the heart, lungs and spirits, and weaken the strength by the dissipation of the spirits too much attenuated; so being too cold, in like manner the strength of the faculties faints and growes dull, either by suppression of the vapours, or by the inspissation, or thickning of the spirits.

What Aire is
hurtfull,

Therefore to conclude, that Aire is to be esteemed healthfull, which is cleere, subtile, and pure, free and open on evcry side, and which is farre remote from all carrion-like smells of dead carcases, or the stench of any putrifying thing whatsoever: the which is farre distant from standing pooles, and fennes and caves, sending forth strong and ill vapours; neither too cloudy nor moist by the nearenesse of some river.

Such an Aire, I say, if it have a vernall temper, is good against all diseases. That aire which is contrary to this is altogether unhealthfull, as that which is putrid, shut up, and prest, by the straitnesse of neighbouring mountaines, infected with some noysome vapour. And because I cannot prosecute all the conditions of aires, fit for the expelling of all diseases, as which are almost infinite, it shall suffice here to have set downe, what we must understand by this word Aire.

Three things
are unders-
stood by the
name of the
aires

Physitions commonly use to understand three things, by the name of Aire; The present state of the Aire; The Region in which wee live; and the season of the yeare. Wee spoke of the last, when wee treated of Temperaments. Wherefore wee will now speake of the two former. The present state of the Aire, one while for some small time, is like the Spring, that is temperate; otherwhiles like the Summer, that is hot and drie; otherwhiles like the Winter, that is cold and moist; and sometimes like the Autumne which is unequall; and this last constitution of the Aire, is the cause of many diseases. When upon the same day, it is one while hot, another cold, we must expect Autumnaill diseases. These tempers and varieties of constitutions of the Aire, are chiefly and principally stirred up by the windes; as which being diffused over all the Aire, shew no small force by their sodaine change. Wherefore we will briefly touch their natures: That which blowes from the East, is called the Eastwinde, and is of a hot and drie nature, and therefore healthfull. But the Westerne winde is cold and moist, and therefore sickly. The South winde is hot and moist, the Author of putrifaction and putride diseases. The North winde is cold and drie, therefore healthy: wherefore it is thought, if it happen to blow in the dogge-dayes, that it makes the whole yeare healthfull, and purges and takes away the seedes of putrifaction, if any chance to be in the aire. But this description of the foure windes, is then onely thought to be true, if we consider the windes in their owne proper nature, which they borrow from these Regions, from which they first proceede. For otherwise they affect the aire quite contrarie, according to the disposition of the places over which they came, as snowie places, Seaes, Lakes, Rivers, Woods, or sandy plaines, from whence they may borrow new qualities, with which they may afterwards possesse the aire, and so consequently our bodies.

How the
windes ac-
quite other
faculties, than
they naturally
have.
The West-
winde of it
felte unwhol-
some.

Hence it is we have noted the Westerne winde unwholsome, and breeding diseases, by reason of the proper conditio[n] of the Region from whence it came; and such, that is cold and moist; the *Gasconies* finde it, truly to their so great harme, that it seldom blowes with them, but it brings some manifest and great harme, either to their bodies, or fruits of the earth. And yet the *Greekes*, and *Latines* are wont to commend it for healthfulness, more than the rest. But also the rising and setting of some more eminent stars, doe often cause such cold windes, that the whole aire is cooled, or infected with some other maligne qualitie. For vapours and exhalations are often raised by the force of the stars, from whence windes, cloudes, stormes, whirlwindes, lightnings, thunders, haile, snow, raine, earthquakes, inundations, and violent raging of the sea, have their original. The exact contemplation of which things, although it be proper to Astronomers, Cosmographers, and Geographers, yet *Hippocrates* could not omit it, but that he must speake something in his book *De aëre & aquis*, where he touches by the way, the description of the neighbouring Regions, and such as hee knew.

What force
stars have up-
on the aire,

From this force of the aire, either hurtfull, or helping in diseases, came that famous observation of *Guido* of Caulias, That wounds of the head are more difficult to cure at Paris, than at Avignon, and the plaine contrarie of wounds of the legges; for the

the aire of Paris compared to that of Avignon is cold and moist, wherefore hurt full and offensive to the wounds of the head. On the contrary, the same aire, because it obscures the spirits, incrassates the blood, condensates the humors, and makes them lesse fit for defluxions, makes the wounds of the legges more easie to be healed, by reason it hinders the course of the humors, by whose defluxion the cure is hindered. But it is manifest, that hot and drie places make a greater dissipation of the naturall heate, from whence the weakenesse of the powers; by which same reason the Inhabitants of such places doe not so well endure bloodletting; but more easily suffer purgations, though vehement, by reason of the contumacie of the humor, caused by drie-nesse. To conclude, the aire changes the constitutions of our bodies, either by its qualities, as if it be hotter, colder, moister, or drier; or by its matter, as if it be grosser, or more subtile than is fit, or corrupted by exhalations from the earth; or by a sodaine and unaccustomed alteration, which any man may prove, who makes a sodaine change out of a quiet aire into a stormy and troubled with many windes. But because, next to the aire, nothing is so necessary to nourish mans body, as meate and drinke, I will now beginne to speake of them both.

How the aire of Paris comes to be ill for wounds of the head, and good for those of the legges.

By what means the aire changes our bodies.

CHAP. XIII.

Of Meate and Drinke.

THat this our Treatise of meate and drinke may be more briefe and plaine, I have thought good to part it into these heads, as to consider the goodnesse and illnesse of both of them, their quantitie, qualitie, custom, delight, order, time, and to accommodate them all to the ages and seasons of the year. We judge of the goodnesse and pravity of meates and drinckes from the condition of the good or vicious humors, or juyce which they beget in us. For evill juyce causeth many diseases. As on the contrary, good juyce drives away all diseases from the body, except the fault happen from some other occasion, as from quantity, or too much excesse. Wherefore it is principally necessary, that those who will preserve their present health, and hinder the access of diseases, feede upon things of good nourishment and digestion, as are good wine, the yolkes of egges, good milke, wheaten bread well baked, the flesh of Capons, Pertridge, Thrushes, Larkes, Veale, Mutton, Kid, and such like other, which you may finde mentioned in the Bookes which *Galen* writ *de Alimentorum facultatibus*; where also he examines those which are of evill juyce by their manifest qualities, as acrimony, bitternesse, saltnesse, aciditie, harshnesse and such like.

The goodnesse of nourishments.

But unlesse we use a convenient quantitie and measure in our meates, howsoever laudable they be, we shal never reape these fruits of health we hoped for. For they yeild matter of diseases, by the onely excesse of their quantitie; but wee may by this know the force of quantitie on both parts, because often the poisonous quality of meates of ill nourishment doth not hurt, by reason they were not taken into the body into a great quantitie. That measure of quantitie is chiefly to be regarded in diseases: for as *Hippocrates* saith, if any give meate to one sick of a feaver, he gives strength to the well, and increases the disease to the sicke, especially if he doe not use a meane. Wherefore it is a thing of no small consequence, to know what diseases require a slender and what a large diet, of which thing there is large relation made in our Section of the Aphorismes of *Hippocrates*; where he teacheth, the sicke must feed more largely in the beginnings of long diseases, wherby they may be enabled to indure the length of the disease, and last to the state thereof. But in sharpe and violent diseases, which presently come to their height, wee must use a slender diet; but most slender, when the disease is in the height; and besides, all our consultations in this kinde, must be referred to the strength of the patients. But those who enjoy their perfect health, must use a quantitie of meate, agreeable to their evacuation and transpiration; for men by reason of the strength of their heate, and the more copious dissipation of the triple substance, have greater appetite, than women; altogether by the same reason, that young people, and such

Their quantitie.

The quantitie of meates must be esteemed, according to the nature of the disease, and strength of the Patient.

such as grow, need more frequent and plentiful nourishment, than old men; and also amongst young men of the like age, some doe rightly require more copious nourishment than othersome, that is, according to the quantitie of their evacuations and custome. Certainly for gluttony, it is such as may be extended to all; but we all should take so much meate and drinke, that our powers may be refreshed and not oppressed: for by the decree of *Hippocrates*, these be the two compendiary wayes of preserving health; not to be over-filled with meate, and to be quicke to worke; and thus much of the quantity of meates. Neither must these who are either sound, or sicke, have lesse regard to the qualities of their meates; and those are either the first, as heating, cooling, moistening, drying; or the second, attenuating, incrassating, obstructing, opening, or some other like, working according to the condition of their nature. The manner of our diet is not onely to be framed according to these, but also to be varied; for the present state of such as be in health, requires to be preserved by the use of like things. As hot and moist nourishment is to be prescribed to children, as to those which are hot and moist: and cold, and drie, to old men, as to those who are cold and drie; if so be that vulgar saying be true, that, Health delights in the use of like things. Yet because old age how greene and new begun howsoever it be, is of it selfe as it were, a disease, it seemes to be more convenient, both to truth and for health, that old people should eat meates contrary to their nature, that is, hot, and moist, that so wee may deferre as much as we can, the causes of death, cold and driness, which hasten the destruction of that age. For wee must resist diseases by the use of their contraries, as those things which are contrary to nature. For otherwise, as much meate as you give to the sicke, you adde so much strength to the disease. And the same is the cause why *Hippocrates* said, that a moist diet is convenient for all such as are sicke of feavers, because a feaver is a drie distemperature. Therefore wee must diligently prie into the nature of the disease, that knowing it, wee may endeavour to abate its fury by the use of contraries.

The qualities
of meate.

Old age is a
disease.

Aphor. 16.
sect. 1.

The force of
Custome.

Aphor. 91.
sect. 2.

Aphor. 38.
sect. 2.

Accustomed
meates are
more grate-
full, and so by
that meane
more nourish-
ing.

But if custome (as they say) be another nature, the Physition must have a great care of it, both in sound and sicke. For this sometimes by little and little and insensibly, changes our naturall temperament, and instead thereof gives us a borrowed temper. Wherefore if any would presently or sodainely change a custome which is sometimes ill, into a better, truly hee will bring more harme, than good; because all sodaine changes (according the opinion of *Hippocrates*) are dangerous. Wherefore if necessitie require, that we should withdraw any thing from our custome, we must doe it by little and little, that so nature may by degrees be accustomed to contraries without violence, or the disturbance of its usuall government. For that meate and drinke which is somewhat worse, but more pleasant and familiar by custome, is to be preferred (in *Hippocrates* opinion) before better, but lesse pleasant and accustomed. Hence is it, that Countrey-men doe very well digest Beefe and Bacon, which commonly they use; but will turne into nidorulent vapours, Partridge, Capons, and other meate of good nourishment, sooner than change them into good and laudable *Chylus*. The cause of which thing is not onely to be attributed unto the propertie of their stronger, and as it were burning heate, but much more to custome, which by a certaine kinde of familiarity, causeth that meates of hard digestion are easily turned into laudable blood. For the force of custome is so great, that accustomed meates are more acceptable; whereby it comes to passe, that while the stomacke delights in them, it more streightly embraces them, and happily digests them, without any trouble of loathing, vomiting, or heaviness. All the contrary meete and happen in the use of meates which are unpleasant to the taste and stomacke. For the ventricle abhorring those things, makes manifest how it is troubled by its acide and nidorulent belchings, loathing, nauseousnesse, vomite, heaviness, paine of the head, and trouble of the whole body.

Wherefore we must diligently enquire, what meates the Patient chiefly delighted in, that by offering them, his appetite languishing by reason of some great evacuation, vomit, or the like, may be stirred up. For it will be better and more readily restored by things acceptable, though they be somewhat worse, as we noted a little before out of *Hippocrates*. By which words hee plainly taught, that it is the part of a good

good and prudent Physitian to subscribe to, and please the palate of his patient.

But seeing that order is most beautifull in all things, it is truly very necessary in eating our meate: for how laudable soever the meates bee in their quantity and quality, howsoever familiar by use, and gratefull by custome, yet unlesse they be eaten in due order, they will either trouble or molest the stomacke, or be ill, or slowly and difficultly concocted; wherefore we must diligently observe, what meates must be eaten at the first, and what at the second course; for those meates which be hard to concoct, are not to be eaten before those which are easy of digestion; neither drie and astringent things, before moistening and loosing.

The order of eating our meats.

But on the contrary, all slippery, fat, and liquid things, and which are quickly changed ought to goe before, that so the belly may be moistened; and then astringent things must follow, that the stomacke, by their helpe, being shut, and drawne together, may more straitly comprehend the meate on every side, and better performe the Chylification by its proper heate united and joyned together.

We must begin our meales with moist or liquid meat.

For this cause *Hippocrates Lib. de victu in acutis*, commands those things to be alwayes eaten in the morning, which are fit to loosen the belly, and in the evenings such as nourish the body. Yet notwithstanding drinke ought not to preceede, or goe before meate, but on the contrary meate must preceede drinke, by the order prescribed by him.

Whether ought wee in our eating to have lesse care of the time, than wee have of the order: for the time of eating of such as are healthfull, ought to be certaine and fixt; for at the accustomed houre, and when hunger presses, any sound man, and which is at his owne disposure may eat, but exercise and accustomed laboures ought to goe before; for it is fit, according to the precept of *Hippocrates*, that labour preceed meate, whereby the excrements of the third concoction may be evacuated, the native heate encreased, and the solid parts confirmed and strengthened, which are three commodities of exercise very necessary to the convenient taking of meate. But in sicke persons we can scarce attend, and give heed to these circumstance of time, and accustomed houre of feeding; for that indication of giving meate to the sicke, is the best of all, which is drawne from the motion of the disease, and the declining of the fit: for if you give meate in feavers, specially the fit then taking the Patient, you nourish not him, but the disease. For the meate then eaten, is corrupted in the stomacke, and yeelds fit matter for the disease. For meate (as we noted before out of *Hippocrates*) is strength to the sound, and a disease to the sicke, unlesse it be eaten at convenient time, and diligent care be had of the strength of the Patient, and greatness of the disease.

The time of eating.

The profit of labour before meate.

But neither is it convenient that the meate should be simple, and of one kinde, but of many sorts, and of divers dishes dressed after different formes, lest nature by the continuall and hatefull feeding upon the same meate, may at the length loath it, and so neither straitly containe it, nor well digest it; or the stomacke accustomed to one meate, taking any loathing thereat, may abhorre all other: and as there is no desire of that we doe not know, so the dejected appetite cannot be delighted and stirred up, with the pleasure of any meate which can be offered. For wee must not credit those superstitious, or too nice Physitions, who thinke the digestion is hindered by the much varietie of meates.

We must not give meat in a fit of a Fever.

The matter is farre otherwise, for by the pleasure of what things soever the stomacke allured doth require, it embraces them more straitly, and concocts them more perfectly. And our nature is desirous of varietie.

Variety of meats.

Moreover, seeing our body is composed of a solid, moist, and airy substance, and it may happen, that by so many laboures, which we are compelled to undergoe, and sustaine in this life, one of these may suffer a greater dissipation and losse than another; therefore the stomacke is necessarily compelled to seeke more varietie, lest any thing should be wanting to repaire that which is wasted. But also the age and season of the year, yeeld Indications of feeding, for some things are convenient for a young man, some for an old, some in Summer, some in Winter. Wherefore wee ought to know what befits each age and season. Children need hot, moist, and much nourishment, which may not onely suffice to nourish, but encrease the body. Wherefore

Why varietie of meats is good.

Indications of feeding, taken from the age.

fore we ought to know what befits each age and season. Children need hot, moist, and much nourishment, which may not onely suffice to nourish, but encrease the body. Wherefore they worst endure fasting, and of them, especially those who are the most lively and spiritfull. With old men it is otherwise, for because their heate is small, they neede little nourishment, and are extinguished by much. Wherefore old men easily endure to fast, they ought to be nourished with hot and moist meates, by which their solid parts, now growing cold and drie, may be heated and moistened, as by the sweet nourishment of such like meates. Middle aged men delight in the moderate use of contraries to temper the excesse of their too acride heate. Young people as temperate are to be preserved by the use of like things.

Indication
from the time
of the year.

The manner of diet in Winter must be hot and inclining to drinesse. Wherefore then we may more plentifully use roast-meates, strong wines and spices; because in the Winter season we are troubled with the cold and moist aire, and at the same time, have much heate inwardly; for the inner parts, according to *Hippocrates*, are naturally most hot in the Winter and the Spring, but feaverish in Summer; so the heat of Summer is to be tempered by the use of cold and moist things, and much drinke. In the temperate Spring all things must be moderate; but in Autumne, by little and little, we must passe from our Summer, to our Winter diet.

CHAP. XV.

Of Motion and Rest.

What motion
signifies.

Here Physitians admonish us, that by the name of Motion, we must understand all sorts of exercises, as walking, leaping, running, riding, playing at tennis, carrying a burden, and the like. Friction or rubbing is of this kinde, which in times past was in great use and esteeme, neither at this day is it altogether neglected by Physitians. They mention many kinds of it, but they may be all reduced to three, as one gentle, another hard, a third indifferent; and that of the whole body, or onely of some part thereof. The friction is called hard, which is made by the rough, or strong pressure of the hands, sponges, or a course and new linnen cloth: it drawes together, condensates, bindes and hardens the flesh, yet if it bee often and long used, at length it rarifies, dissolves, attenuates and diminishes the flesh, and any other substance of the body; and also it causeth revulsion, and drawes the defluxion of humors from one part to another. The gentle friction which is performed by the light rubbing of the hand, and such like, doth the contrarie, as softens, relaxes, and makes the skinn smooth and unwrinkled, yet unlesse it be long continued it doth none of these, worthy to be spoken of. The indifferent kinds consisting in the meane betwixt the other two, increaseth the flesh, swells or puffes up the habite of the body, because it retaines the bloud and spirits which it drawes and suffers them not to be dissipated.

The use of
exercises.

The benefit of exercise is great, for it increaseth naturall heate, whereby better digestion followes, and by that meanes nourishment, and the expulsion of the excrements, and lastly, a quicker motion of the spirits, to performe their offices in the bodie, all the wayes and passages being cleansed. Besides, it strengthens the respiration, and the other actions of the body, confirms the habite, and all the limbes of the body, by the mutuall attrition of the one with the other; whereby it comes to passe they are not so quickly wearied with labour. Hence we see that Country people are not to be tired with labour.

What the fit
rest time for
exercise.

If any will reape these benefits by exercise, it is necessary that he take opportunity to beginne his exercise, and that he seasonably desist from it, not exercising himselfe violently and without discretion; but at certaine times according to reason.

Wherefore the best time for exercise will be before meate (that the appetite may be encreased by augmenting the naturall heate) all the excrements being evacuated, lest nature being hungry and empty, doe draw and infuse the ill humors contained in the guts, and other parts of the body, into the whole habite, the liver, and other

noble

noble parts. Neither is it fit presently, after meate, to runne into exercise, lest the crude humors and meats not well concocted be carried into the veines. The measure and bounds of exercise must be, when the body appeares more full, the face looks red, sweat beginnes to breake forth, we breathe more strongly and quicke, and begin to grow weary; if any continue exercise longer, stiffness, and weariness affayles his joints, and the body flowing with sweate suffers a losse of the spiruous and humid substance which is not easily repaired; by which it becomes more cold, and leane even to deformitie.

The qualitie of exercise which we require, is in the midst of exercise, so that the exercise must be neither too slow and idle, neither too strong, nor too weake, neither too hasty, nor remisse, but which may move all the members alike. Such exercise is very fit for sound bodies. But if they be distempered, that sort of exercise is to be made choise of, which by the qualitie of its excess, may correct the distemper of the body, and reduce it to a certaine mediocritie. Wherefore such men as are stuffed with cold, grosse, and viscous humors, shall hold that kinde of exercise most fit for them, which is more laborious, vehement, strong, and longer continued. Yet so, that they doe not enter into it before the first and second concoction, which they may know by the yellownesse of their urine. But let such as abound with thinne and cholericke humors chuse gentle exercises, and such as are free from contention, not expecting the finishing of the second concoction, for the more acride heate of the solid parts delights in such halfe concocted juices, which otherwise it would so burne up, all the glutinous substance thereof being wasted, that they could not be adjoynded, or fastened to the parts. For the repeating, or renewing of exercise, the body should bee so often exercised, as there is a desire to eate. For exercise stirres up and revives the heate which lies buried and hid in the body: For digestion cannot be well performed by a sluggish heate; neither have we any benefit by the meate we eate, unlesse wee use exercise before.

The qualitie of exercise.

For whom strong exercises are convenient.

The last part of exercise begun and performed according to reason, is named * the *ordering of the body*, which is performed by an indifferent rubbing, and drying of the members; that so the sweat breake forth, the filth of the body, and such excrements lying under the skinne, may be allured and drawne out; and also that the members may be freed from stiffness and weariness. At this time it is commonly used by such as play at tennis.

* *Amo Deg-mia.*

But, as many and great commodities arise from exercise conveniently begunne and performed, so great harme proceeds of idleness; for grosse and vicious juyces heaped up in the body commonly produce crudities, obstructions, stones both in the reines and bladder, the Goute, Apoplexie, and a thousand other diseases.

What discommodities proceed from idleness.

CHAP. XVI.

Of Sleepe and Watching.

THat this our speech of Sleepe and Watching, which we now intend, may be more plaine, we will briefly declare, what commoditie or discommoditie they bring, what time and what houre is convenient for both, what the manner of lying must bee, and the choise thereof; what the dreames in sleeping, and what paines or heaviness and cheerefulness after sleepe may portend.

Sleepe is nothing else than the rest of the whole body, and the cessation of the Animall facultie from sense and motion. Sleepe is caused, when the substance of the braine is possessed, and after some sort overcome and dulled by a certaine vaporous, sweete and delightfome humidity; or when the spirits almost exhaust by performance of some labour, cannot any longer sustaine the weight of the body, but cause rest by a necessary consequence, by which meanes nature may produce other from the meate by concoction turned into blood.

What sleepe is.

Sleepe

The use of
Sleepe.

Sleepe fitly taken much helps the digestion of the parts, because in the time of rest, the heat, being the worker of all concoction, is carryed backe to them, together with the spirits. Neither doth sleepe only give ease to the wearyed members, but also lessens our cares and makes us to forget our labours.

Fit time for
Sleepe and the
nature of the
night.

The night is a fit time to sleepe and to take our rest in, as inviting sleepe by its moisture, silence and darknesse. For the Heat and Spirits in the thick obscurity of night, are driven in and retained in the center of the body; as on the contrary by the daily and as it were friendly and familiar light of the Sun, they are allured & drawne forth into the superficies, and outward part of the body; from whence they leave sleeping and begin to wake. Besides also, which makes not a little, to that opportunity and benefit which wee looke for from sleepe, the night season suffices for the worke of just and perfect concoction. Which is one reason amongst many that sleep on the day time may be hurtfull. For wee are wakened from our sleepe by the heat and spirits called forth to the skinn either by the light, or noise on the day time, before that the concoction which was begun be finished. But that sleepe cannot but be light which comes without necessity of sleeping. Wherefore the concoction being attempted, but not perfected, the stomacke is filled with crudities, distended with acide or soure belchings, and the braine troubled with grosse vapours and excrementitious humidities. From whence proceeds paine and heavines of the head, and store of cold diseases. But although sleepe on the night time be wholesome, yet it is fit, that it be restrained within the limits of an indifferent time. For that which exceeds hinders the evacuation of excrements both upwards and downewards: but in the meane time the heate which is neuer idle, drawes from them some portion or vapour into the veines, principall parts and habite of the body, to become matter for some disease. We must measure this time, not by the space of houres, but by the finishing the worke of concoction, which is performed in some, sooner than in other some. Yet that which is longest is perfected and done in seaven, or eight houres. The ventricle subsiding and falling into its selfe and its proper coats, and the urine tintured yeallow, gives perfect judgment thereof. For on the contrary the extension of the stomacke, acide belching, paine of the head, and heavines of the whole body, shew that the concoction is unperfect.

Sleepe on the
day-time.

There ought
to be a moderate
ration of our
nights sleepe.

How to be
knowne.

What the
forme and site
of our body
ought to be
while we sleep

In sleeping we must have speciall care of our lying downe, for first we must lye on our right side, that so the meat may fall into the bottome of our stomacke, which being fleshy and lesse membranous, is the hotter, and more powerfull to assimilate. Then a litle after we must turne upon our left side, that so the Liver with its Lobes, as with hands may on every side embrace the ventricle, and as fire put under a Kettle, hasten the concoction. Lastly, towards morning it will not be unprofitable to turne againe upon our right side, that by this scituation the mouth of the stomacke being opened, the vapours which arise from the elixation of the *Chylus* may have freer passage. Lying upon the backe is wholly to be avoided; for from hence the Reines are inflamed, the Stone is bred, Palsies, Convulsion, and all diseases which have their originall from the defluxion into the spinall marrow, and to the Nerves taking beginning from thence. To lye upon the belly is not unprofitable for such as have used to lye so, if they be not troubled with defluxions into the eyes; for so the humor will more easily flow into the part affected. But thus the worke of concoction is not a litle furthered, because by that forme of lying, not onely the inward heate is contained and gathered together about the ventricle, but the encompassing warmnesse of the soft feathers of the bed, aides and assists it.

The harme of
lying on our
backes.

Upon our bel-
lies.

The consider-
ation of
dreames.

Neither are the Dreames which we have in our sleepe to be neglected, for by the diligent consideration of these, the affections and superfluous humors which have chiefe power in the body are marvailously knowne. For those who have raging Choler running up and downe their bodyes while they sleepe, all things to them appeare bright, shining, fiery, burning, full of noyse and contention. Those who abound with Phlegme dreame of floods, shewes, showers and inundations and falling from high places. Those who are Melancholy dreame of gapings and gulfes in the earth, thicke and obscure darknesse, smokes, caves, and all blacke and dismall things. But those whose bodyes abound in blood dreame of marriages, dances, embracing

bracings of women, feasts, jests, laughter, of orchards and gardens; and to conclude, of all things pleasant and splendid.

Also we must observe how the Patient doth after sleepe, whether more lively and cheerefull, or more heavy, for by the opinion of *Hippocrates*,

*Cum labor à sommo est, lethalem collige morbum :
Sin profit somnus, nihil hinc lethale timendum est.*

Aphor. I. sect.
2.

Paine sleepe ensuing, an ill disease doth show :
But if sleepe profit bring, no harme from thence will flow.

And as sleepe so watching, if it exceede measure, is hurtfull; for it hurts the temperance of the braine, weakens the senses, wastes the spirits, breeds crudities, heavinesse of the head, falling away of the flesh, and leanenesse over all the body, and to conclude, it makes ulcers more dry, and so consequently rebellious, difficult to heale, and maligne. There are many other things may be spoken of sleepe and watching, but these may suffice a Chirurgion.

CHAP. XVII.

Of Repletion, and Inanition, or Emptinesse.

Here are, to bee short, two sorts of Repletion, or of all excesse; one is of a simple qualitie, without any defluxion, or societie of any humor, as appeares in distempers without matter: the other is of quantitie and masse, the body being distended with too much meate, or too great quantitie of humors; from whence proceed an infinite number of diseases. They call the Repletion of meates, satietie or fulnesse, and it is of two kinds; the one which is called * Repletion or Fulnesse to the vessels; the other * Repletion to the strength.

The kinds of
Repletions
or rather of
Excesses,

* Re-
ple- { ad vasa
tio { ad vires

Wee judge of satietie to the vessels, by the distention and swelling of the veines and intrailles, as the stomacke. Wee call satietie to the strength, when the body is loaded with more meates, than it can well beare. But also there is a double Repletion of humors. For either it is of some one humor, or of all the humors; they call this by a peculiar name *Plethora*. For *Galen* defines *Plethora* an equall excesse of all the humors. For if at any time he define a *Plethora* to be an excesse of bloud onely, then verily by the name of bloud, he understands an equall comprehension of the foure humors; as it is taught in Physicke schooles.

Gal. Meth. 13.
cap. 6.

The Repletion which is caused by some one humor, is termed by *Galen* in the place before mentioned, *Cacoehymia*, (that is, an evill juyce) whether the Repletion proceede of a Cholericke, Melancholicke, Phlegmaticke, or serous humor.

What Caco-
ehymia.

Now Inanition, or evacuation is no other thing than the expulsion, or effusion, of humors which are troublesome, either in quantitie, or qualitie. Of evacuations, some are universall, which expell superfluous humors from the whole body; such are purging, vomiting, transpiration, sweats, phlebotomie. Some particular which are performed onely to evacuate some part, as the braine by the nose, palate, eyes, eares; the lungs by the weazon; the stomacke by vomite and stoole, the guts by stoole, the liver and the spleene by urine and ordure. These evacuations are sometimes performed by nature, freeing it selfe of that which is troublesome to it; otherwhiles by the Art of the Physicion in imitation of nature.

The kinds of
evacuation. 8

And againe, one of these is good and requisite, when onely the humor which is hurtfull, either in quantitie or qualitie, is evacuated; The other not requisite, or

immoderate, when the profitable humors together with the unprofitable, are expelled.

The commodities of moderate scratching.

But what evacuations soever these be, they are performed and done, either by the scratching and rubbing of the skinne, as when a cholericke, salt, or serous humor, or some windinesse lying betwene the skinne and the flesh, cause itching. For by scratching the skinne, it gets passage out, which is manifest by the efflux of a serous matter burning, or causing scabbs and ulcers, if the humor be somewhat grosse, but insensible and not so manifest, if it be windinesse, the skinne by that rubbing being rarefied, and the grosse flatulency attenuated. Wherefore they doe ill who hinder their Patients from scratching, unlesse they scratch so cruelly and hard, that there may bee danger, (by reason of the great heate and paine thereby caused) of some defluxion or falling downe of humors into the part.

The force of vomits.

Salivation.

The whole body is also purged by urines.

Or these evacuations are performed by much matter evacuated from an opened Bile, or running ulcer, a Fistula, or such like sores. Or by sweats which are very good and healthfull, especially in sharpe diseases, if they proceede from the whole body, and happen on the criticall dayes. By vomit, which often violently drawes these humors from the whole body, even from the utmost joints, which purging medicins could not evacuate, as wee may see in the Palsie, and Sciatica, or Hip-goute. By spitting, as in all who are suppurated either in the sides or lungs. By Salivation, or a Flegmaticke fluxe by the mouth, as in those who are troubled with the French Pockes. By sneezing and blowing the nose; for by these the braine oppressed with moisture, disburdeneth its selfe, whether it be done without, or with the helpe of sternutatories and errhines; wherefore children, and such as have somewhat moist braines purge themselves often this way. By hicket and belching; for by these the windinesse contained in the stomacke, is often expelled. By urine, for by this not onely Feavers, but which is more to bee admired, the French-Pockes hath often bene terminated and cured.

For there have bene some troubled with the Pockes, in whom a fluxe of the vicious and venenate humor could not by unctions of quicksilver be procured, either from the mouth, or belly; yet have bene wonderfully freed by abundance of urine, both from danger of death and their disease. By bleeding; for nature hath often found a way for grievous diseases, especially in young bodies, by bleeding at the nose, and by their courses in women. By a fluxe, or laske, purgation, sweats, insensible evacuation and transpiration; for so tumors, the matter being brought to suppuration, doe sometimes vanish away and are dissolved, both of their owne accord, as also by dissolving, or discussing medicins. We doe the same by exercise, diet, hot-houses, long sleepe, waking, and shedding of teares. By sucking, as with cupping glasses and horse-leaches in wounds made by venomous bitings.

We must observe three things in every evacuation.

In all such kinds of evacuations, wee must consider three things, the quantity, quality, and manner of evacuation. As for an example, when an *Empyema* is opened, the matter which runnes out, ought to bee answerable in proportion to the purulent matter, which was contained in the capacity of the breasts; otherwise, unlesse all the matter bee emptied, there may happen a relapse; the matter should be white, soft, equall, and nothing stinking: Lastly, you must let it forth not altogether, and at one time, but by little and little, and at severall times, otherwise not a little quantity of the spirits and heate doth flow out together, with the unprofitable matter, and so consequently a dissolution of all the powers.

CHAP. XVIII.

Of the Perturbations, or Passions of the minde.

He Perturbations, are commonly called the accidents of the minde; because, as bodily accidents from the body, so may these be present and absent from the minde, without the corruption of the subject. The knowledge of these must not be lightly passed over by the Chirurgeon; for they stir up great troubles in the bodies, and yeeld occasion of many & great diseases; of which things, Ioy, Hope and Love, may give a apparent testimony. For by these motions the heate and spirits are sometimes gently, sometimes violently diffused over all the body, for the enjoying of the present, or hoped for good. For then the heart is dilated, as to embrace the thing beloved, and the face is died with a rosy and lively colour. For it is likely, that the facultie it selfe is stirred by the object, by whose power the heart it selfe is moved.

Why the Passions of the minde, are called Accidents. Their force.

For it is first necessary, before wee be moved by any Passions, that the senses in their proper seates, in which they are seldome deceived, apprehend the objects, and strait as messengers carrie them to the common sense, which sends their conceived formes to all the faculties. And then, that each facultie, as a Iudge may a fresh examine the whole matter, how it is, and conceive in the presented objects some shew of good, or ill, to bee desired, or shunned. For what man that was well in his wits, did ever fall into a laughter, unlesse he formerly knew, or saw somewhat said or done, which might yeeld occasion of laughter? Therefore Ioy proceeds from the heart, for the thing causing mirth or joy, being conceived, the facultie moves the heart, which shaken and moved by the faculty which hath dominion over it, is dilated and opened, as ready to embrace the exhilarating object. But in the meane time by the force of that dilatation, it sends forth much heate, and spirits together with the bloud into all the body. A great part of which coming to the face, dilates it, the forehead is smooth and plaine, the eyes looke bright, the cheekes become red, as died with Vermilion, the lips and mouth are drawen together, and made plaine and smoth; some have their cheekes dented with two little pits (which from the effects are called laughing cheekes) because of the contraction or curling, which the muscles suffer by reason of their fulnesse of bloud and spirits, all which to be brieve is nothing but to laugh.

From whence they have their force.

The reason of Ioy.

Ioy recreates and quickens all the faculties, stirres up the spirits, helps concoction, makes the body to bee better likeing, and fattens it, the heate, bloud, and spirits flowing thither, and the nourishing dew or moisture, watering and refreshing all the members; from whence it is, that of all the Passions of the minde, this onely is profitable, so that it exceed not measure; for immoderate and unaccustomed joy, carries so violently the bloud and spirits from the heart, into the habit of the body, that sodaine and unlookt for death ensues, by a speedy decay of the strength, the lasting fountaine of the vitall humour being exhausted. Which thing principally happens to those who are lesse heartie, as women and old men.

The effects of Ioy.

Anger causeth the same effusion of heate in us, but farre speedier than joy; therefore the spirits and humors are so inflamed by it, that it often causes putrid feavers, especially if the body abound with any ill humor.

Anger.

Sorrow, or grieve dries the body by a way quite contrary to that of anger, because by this the heart is so straitened, the heate being almost extinct, that the accustomed generation of spirits cannot be performed; and if any be generated, they cannot freely passe into the members with the bloud; wherefore the vitall facultie is weakened, the lively colour of the face withers and decaies, and the body wastes away with a lingering consumption.

Sorrow.

Feare in like sort drawes in and calls backe the spirits, and not by little and little as in sorrow, but sodainely and violently; hereupon the face growes sodainely pale,

Feare.

the extreame parts cold, all the body trembles or shakes, the belly in some is loosed, the voice as it were staies in the jawes, the heart beate with a violent pulsation, because it is almost opprest by the heate, strangled by the plentie of bloud, and spirits abundantly rushing thither; The haire also stands upright, because the heate and bloud are retired to the inner parts, and the utmost parts are more cold and drie than stone; by reason whereof the utmost skinne and the pores, in which the rootes of the haire are fastened, are drawne together.

Hippocrat. lib.
4. de morb.

Shame.

Shame is a certaine affection mixed, as it were, of Anger and Feare; therefore if, in that conflict of, as it were, contending passions, Feare prevaile over Anger, the face waxeth pale, (the bloud flying backe to the heart,) and these or these Symptomes rise, according to the vehemency of the contracted and abated heat. But if on the contrary, Anger get the dominion over Feare, the bloud runnes violently to the face, the eyes looke red, and sometimes they even come at the mouth.

Shamefast-
nesse.

There is another kinde of shame, which the Latines call *Verecundia* (wee Shamefastnesse) in which there is a certaine fluxe, and refluxe of the heate, and bloud first recoiling to the heart, then presently rebounding from thence againe. But that motion is so gentle, that the heart thereby suffers no oppression, nor defect of spirits; wherefore no accidents worthy to be spoken of, arise from hence: this affect is familiar to young maid es and boyes; who if they blush for a fault committed unawares, or through carelesnesse, it is thought an argument of a vertuous and good disposition.

An agonie.

But an agony, which is a mixt passion of a strong feare, and vehement anger, involves the heart in the danger of both motions; wherefore by this passion, the vitall facultie is brought into very great danger. To these sixe Passions of the minde, all other may be revoked, as Hatred and Discord to Anger: Mirth and Boasting, to Ioy; Terrors, Frights and Swooundings, to Feare; Envy, Despaire and Mourning, to Sorrow.

By these it is evident, how much the passions of the minde can prevaile, to alter and overthrow the state of the body; and that by no other meanes, than that by the compression and dilatation of the heart, they diffuse and contract the spirits bloud, and heate; from whence happens the dissipation, or oppressions of these spirits.

Why the first
signes of pas-
sions of the
minde appeare
in the face.

The signes of these Symptomes quickly shew themselves in the face; the heart, by reason of the thinnesse of the skinne in that part, as it were painting forth the notes of its affections. And certainly the face is a part so fit to disclose all the affections of the inward parts, that by it you may manifestly know an old man from a young, a woman from a man, a temperate person from an untemperate, an Ethiopian from an Indian, a Frenchman from a Spaniard, a sad man from a merry, a sound from a sicke, a living from a dead. Wherefore many affirme that the manners, and those things which we keepe secret and hid in our hearts, may be understood by the face and countenance.

The use of
passions of the
minde.

Now wee have declared what commoditie and discommoditie may redound to man from these forementioned passions, and have shewed that anger is profitable to none, unlesse by chance to some dull by reason of idlenesse, or opprest with some cold, clammy and phlegmaticke humor; and feare convenient for none, unlesse peradventure for such as are brought into manifest and extreme danger of their life by some extraordinary sweat, immoderate bleeding, or the like unbridled evacuation, Wherefore it behoves a wise Chirurgion to have a care, lest he inconsiderately put any Patient committed to his charge into any of these passions, unlesse there bee some necessitie thereof, by reason of any of the forementioned occasions.

CHAP. XIX.

Of things against Nature, and first of the Cause of a Disease.



Having intreated of things naturall, and not naturall, now it remaines wee speake of things (which are called) against nature, because that they are such as are apt to weaken and corrupt the state of our body. And they bee three in number; The cause of a disease, a Disease, and a Symptome. The cause of a disease is an affect against nature, which causes the disease. Which is divided into Internall and Externall. The Externall, originall or primitive comes from some other place, and out wardly into the body, such be meates of ill nourishment, and such weapons and hostilely wound the body.

What things against nature are.

What, and how many the causes of diseases be. The primitive cause.

Internall antecedent.

The Internall have their essence and seate in the body, and are subdivided into antecedent and conjunct. That is called an antecedent cause, which as yet doth not actually make a disease, but goes neare to cause one; so humors copiously flowing, or ready to flow into any part, are the antecedent causes of diseases; The conjunct cause is that which actually causes the disease, and is so immediately joined in affinitie to the disease, that the disease being present, it is present, and being absent, it is absent.

Internall conjunct.

Againe, of all such causes, some are borne together with us, as the over-great quantitie, and maligne qualitie of both the seedes, and the menstruous bloud, from diseased Parents are causes of many diseases, and specially of those which are called Hereditary.

Other happen to us after wee bee borne, by our diet and manner of life, a stroke, fall, or such other like. Those which bee bred with us, cannot be wholly avoided or amended, but some of the other may be avoided, as a stroke and fall; some not, as those which necessarily enter into our body, as Aire, Meate, Drinke, and the like.

But if any will reckon up amongst the internall, inherent, and inevitable causes, the daily, nay hourelly dissipation of the radicall moisture, which the naturall heate continually preyes upon; I doe not gainsay it, no more than that division of causes celebrated and received of Philosophers, divided into Materiall, Formall, Efficient, and Finall; for such a curious contemplation belongs not to a Chirurgion, whom I onely intend plainely to instruct. Wherefore that wee have written may suffice him.

The congenit, or inevitable cause of death.

CHAP. XX.

Of a Disease.



Disease is an affect against nature, principally and by it selfe, hurting and depraving the action of the part in which it resides. The division of a Disease is threefold; Distemperature, ill Conformation, and the Solution of Continuity.

What a disease is, and how various.

Distemperature is a disease of the simular parts dissenting, and changed from their proper and native temper. That digression from the native temper, happens two wayes; either by a simple distemperature from the excesse of one qualitie; and this is fourefold; Hot, Cold, Moist, and Drie; or by a compound distemperature, by the excesse of two qualities, which also is fourefold, Hot and Moist; Hot and Drie, Cold and Moist; Cold and Drie. Againe, every distemper is the fault of one simple and single qualitie, as an inflammation; or hath some vicious humors joyned with it, as a Phlegmon; Againe, a Distemperature is either equall, as in a *Sphacelle*; or unequall, as in a *Phlegmon*, beginning, or increasing.

A Distemperature.

Ill Conformity is a fault of the organick parts, whose composure is

Ill conformation.

Solution of
Continuitie:

is thereby depraved. This hath foure kindes; the first is when the figure of the part is faultie, either by nature or accident, or some cavitie abolished, as if a part, which nature would have hollow for some certaine use, doe grow or close up; or lastly, if they be rough, or smooth otherwise than they should, as if that part which should be rough, be smooth, or the contrary. Another is in the magnitude of the part increased, or diminished contrarie to nature. The third is in the number of the parts, increased, or diminished; as if a hand have but foure or else fixe fingers. The fourth is in the site and mutuall connexion of the parts, as if the parts which should be naturally united and continued bee pluckt asunder, as happens in luxations; or the contrary. The third generall kinde of disease, is the solution of continuitie, a disease common, both to the simular and organicall parts, acquiring diversitie of names, according to the varietie of the parts in which it resides.

CHAP. XXI.

Of a Symptome.

What a Symptome is.

WE doe not in this place take the word Symptome in the most generall acceptation, for every change or accident which happens to man besides his owne nature; but more reservedly and specially, onely for that change which the disease brings, and which followes the disease, as a shadow doth the body.

Three kindes thereof.

There be three kindes of a Symptome properly taken. The first is, when the action is hurt; I say hurt, because it is either abolished, weakened, or depraved; so blindnesse is a deprivation, or abolishing of the action of seeing; dulnesse of sight, is a diminution, or weakening thereof; and a suffusion, such as happens at the beginning of a Cataract, when they thinke flies, haire, and such like bodies flie too and fro before their eyes, is a depravation of the sight.

The second is a simple affect of the body, and a full fault of the habite thereof being changed, happening by the mutation of some qualities, such is the changing of the native colour into a red by a Phlegmon, and into a livide and blacke by a Gangrene; such is the filthy stench the nose affected with a *Polypus* sends forth; the bitter taste, in such as have the laundise; and the rough and rugged skinne in them which are Leprous.

The third is the fault of the overmuch retention of excrements which should be expelled, and expulsion of such as should be retained; for the evacuation of an humor profitable both in quantitie and qualitie, is against nature, as bleeding in a body not full of ill humors, nor Plethoricke; and also the retention of things hurtfull in substance, quantitie and qualitie, as the Courses in women, the urine, and the stone in the bladder.

CHAP. XXII.

Of Indications.

What an Indication is.

His knowledge and exercise of Indications befits that Chirurgion, whom no blinde rashnesse of fortune, but reason; no chance, but counsell directs in the undertaking and performing the workes of his Art. For an Indication is a certaine safe and short way, which leades the Physition, as by the hand, to the attainment of his purposed end, of preserving the sound, or curing the sicke.

Sec. method.
Cap. 7. lib. de
op. secta,
Cap. 11.

For *Galen* doth define an Indication to be a certaine insinuation of what is to be done, or a quick & judicious apprehension of that which may profit or hurt. And as *Faulconers*,

ners, Mariners, Plowmen, Soldiers, & all manner of Artizans, have their peculiar termes and words, which are neither knowne, nor used by the vulgar; so this word Indication is proper and peculiar to Physicians and Chirurgeons, as a Terme of Arte not vulgar; by consideration of which, as by some signe, or secret token, they are admonished what is to be done to restore health, or repell an imminent danger.

There are three prime and principall kinds of Indications, every of which is subdivided into many other. The first is from things naturall. The second from these things which are termed not naturall. The third from those things which are contrary to nature. Things naturall shew they must be preserved by their like, and in the compasse of these are contained all the Indications which are drawne from the nature of the Patient, that is, from his strength, temper, age, sexe, habit, custome, diet.

The kinds of
Indications.

Things not naturall may be doubted as uncertaine, for one while they indicate the same things with things naturall, that is, they coindicate with the strength, temper and the rest; other whiles they consent with things against nature, that is, they coindicate with the disease. Wherefore *Galen* when he saith, that Indications are drawn from three things; The disease; The nature of the Patient, and the encompassing aire, by proposing the familiar example of the aire, hee would have us to understand the other things not naturall; because wee may shun, or embrace them more or lesse as we will our selves, but we must, whether we will or no, endure the present state of the aire. Therefore the aire indicates something to us, or rather coindicates; for if it nourish the disease, as conspiring with it, it will indicate the same that the disease, that is, that it must be preserved in the same state.

Lib. 9. Method.
cap. 9.

Things contrary to nature indicate they must be taken away by their contraries; therefore that we may more accurately and fully handle all the Indications drawne from things naturall, we must note, that some of these are concerning the strength of the Patient, by care to preserve which, we are often compelled for a time to forsake the cure of the proper disease: for so a great shaking happening at the beginning of an ague or feaver, we are often forced to give sustenance to the Patient, to strengthen the powers shaken by the vehemency of the shaking, which thing notwithstanding lengthens both the generall and particular fits of the ague. Other pertaine to the temper, other respect the habite, if the Patient be slender, if fat, if well flesht, if of a rare, or dense constitution of body. Other respect the condition of the part affected in substance, consistence, softnesse, hardnesse, quicke or dull sense, forme, figure, magnitude, site, connexion, principallity, service, function and use. From all these, as from notes the skilfull Chirurgeon will draw Indications according to the time and part affected: for the same things are not fit for fore eyes, which were convenient for the eares, neither doth a Phlegmon in the jawes and throat admit the same forme of cure, as it doth in other parts of the body. For none can there outwardly apply repercussives, without present danger of suffocation. So there is no use of repercussives in defluxions of those parts which in site are neere the principall. Neither must thou cure a wounded Nerve and Muscle, after one manner. The temperature of a part, as Moisture, alwayes indicates its preservation, although the disease be moist and give Indication of drying, as an ulcer. The principallity of a part alwayes insinuates an Indication of astringent things, although the disease require dissolving, as an Obstruction of the Liver; for otherwise unlesse you mixe astringent things with dissolving, you will so dissolve the strength of the part, that hereafter it cannot suffice for sanguification. If the texture of a part be rare, it shewes it is lesse apt, or prone to obstruction; if dense, it is more abnoxious to that disease; hence it is that the Liver is oftener obstructed than the Spleene. If the part be scituate more deepe, or remote, it indicates the medicines must be more vigorous and liquid, that they may send their force so farre. The sensiblenesse, or quicke-sense of the part, gives Indication of milder medicines, than peradventur the signes, or notes of a great disease require. For the Physician which applies things equally sharpe to the Horny tunicle of the eye being ulcerated, and to the Legge, must needs be accounted either cruell, or ignorant. Each sexe and Age hath its Indications, for some diseases are curable in youth, which we must not hope to cure in old age; for hoarsenesse and great distillations in very old men, admit no digestion, as *Hippocrates* saith;

Indications
drawne from
things naturall.

What the con-
ditions of the
parts affected
do indicate.

Indications
from the ages.

Apher. 40. li. 2.

Nunquam

Nunquam decrepitus Branchum coquit, atque Coryzam.

The feeble Sire, for age that hardly goes,
Ne're well digests, the hurtfull Rheume or pose.

Moreover according to his decree the diseases of the Reines, and whatsoever paines molest the bladder, are difficultly healed in old men; and also reason persuades that a Quartaine admits no cure in Winter, and scarce a Quotidian, and ulcers in like manner are more hard to heale in Winter; that hence we may understand certaine Indications to be drawne from time; and to increase the credit of the variety and certainty of Indications, some certaine time, and seasons in those times command us to make choise of Medicines; for as *Hipocrates* testifies;

Ad Canis ardorem facilis purgatio non est.

In Dogdayes heat it is not good,
By purging for to cleanse the blood.

Neither shalt thou so well prescribe a slender diet in Winter, as in the Spring, for the aire hath its Indications. For experience teaches us, that wounds of the head are farre more difficultly and hardly cured, at Rome, Naples, and Rochell in Xantaigne. But the times of diseases yeeld the principall Indications, for some Medicines are onely to be used at the beginning and end of diseases, others at the encrease and vigour of the disease. We must not contemne those Indications which are drawn from the vocation of life, and manner of Diet; for you must otherwise deale with the painfull Husbandman (when he is your Patient) which leades his life sparingly and hardly, than with the Citizen who lives daintily and idly. To this manner of life and Diet may be referred a certaine secret and occult property, by which many are not onely ready to vomite at eating of some meats, but tremble over all their bodies when they heare them but spoken of. I knew a prime Nobleman of the French Nobility, who was so perplexed at the serving in of an Eele to the Table, at the middst of dinner & amongst his friends, that he fell into a swoond, all his powers failing him. *Galen* in his booke *de Consuetudine* tells that *Arius* the *Peripateticke* died suddenly, because compelled by the advise of those Physicians he used, he dranke a great draught of cold water in the intollerable heat of a Feaver. For no other reason saith *Galen*, than that, because he knowing he had naturally a cold stomacke from his childhood, perpetually abstained from cold water.

For as much as belongs to Indications taken from things against nature; the Length and depth of a wound or ulcer indicates one way; the figure cornered, round, equall and smooth, unequall and rough, with a hollownesse straight or winding, indicate otherwise; the site right, left, upper, lower in another manner, and otherwise the force and violence of antecedent and conjunct causes. For oftentimes the condition of the cause indicates contrary to the disease, as when abundance of cold and grosse humors cause and nourish a Feaver. So also a Symptome often indicates contrary to the disease, in which contradiction, that Indication must be most esteemed, which doth most urge; as for example sake, if swoounding happen in a Feaver, the feaverish burning shall not hinder us from giving wine to the Patient.

Wherefore these Indications are the Principallest and most noble which leade us, as by the hand, to doe these things which pertaine to the cure, prevention and mitigating of diseases. But if any object, that so curious a search of so many Indications is to no purpose, because there are many Chirurgions, which setting onely one before their eyes, which is drawne from the Essence of the disease, have the report and fame of skillfull Chirurgions, in the opinion of the vulgar; but let him know that it doth not therefore follow, that, this indication is sufficient for the cure of all diseases; for we doe not alwayes follow that which the Essence of the disease doth indicate to be done. But chiefly then, where none of the fore-recited Indications doth resist or gainsay; you may understand this by the example of a *Plethora*, which by the Indication drawne from the Essence of the thing requires Phlebotomy; yet who

is

Apher. 62
sect. 6.

Ap hor. 5.
sect. 4.

From our
Diet.

Hatred arising
from secret
properties.

Indications
taken from
things against
nature.

We do not al-
wayes follow
the Indication
which is from
the disease.

is it, that will draw blood from a child of three monethes old? Besides, such an Indication is not artificiall but common to the Chirurgion with the common people. For who is it that is ignorant, that contraries are the remedies of contraries? and that broken bones must be united by joyning them together? but how it must be performed and done, this is of Arte and peculiar to a Chirurgion, and not knowne to the vulgar. Which the Indications drawn from those fountaines we pointed at before, abundantly teaches, which, as by certaine limits of circumstances, encompass the Indication which is taken from the Essence of the disease, lest any should thinke, we must trust to that onely. For there is some great and principall matter in it, but not all. For so the meanest of the common people is not ignorant, that the solution of continuity is to be cured by repairing that which is lost. But in what parts we may hope for restitution of the lost substance, and in which not, is the part of a skilfull Chirurgion to know and pronounce. Wherefore hee will not vainly bestow his labour to cure the Nervous part of the *Diaphragma*, or Midriff being wounded, or the Heart, small Gutts, Lungs, Liver, Stomacke, braine or bladder; and that, I may speake in a word, Emperickes are not much more skilfull than the common people, although they do so much extoll themselves above others by the name of experience. For although experience be another instrument to find out things with reason, yet without reason, it will never teach, what the substance of the part in which the disease lyes, may be; or what the action, use, site, connexion, from whence speciall and proper Indications are drawne; With which the Chirurgion being provided and instructed shall not onely know by what meanes to finde out a remedye, but also, lest he may seeme to mocke any with vaine promises, he shall discerne what diseases are uncureable, and therefore not to be medled withall.

In what parts we cannot hope for restoring of solution of continuity.

Experience without reason is like a blind man without a guide.

But implicate, or intricate diseases require each to be cured in their severall order, except some one of them be desperate, or so urge and presse that the Physition think it necessary after a preposterous order, to begin with it, although often he be forced to make some one of these diseases incurable, or give occasion of causing some new one, into which straits we are necessarily compelled to fall, when, (for example) we determine to pull, or take away some extraneous body; for the performance whereof we are compelled to enlarge the wound. So we are forced by necessitie to open the necke of the bladder, (that so we may draw forth the stone therein contained) with a wound which often degenerates into an incurable Fistula. For that disease which threatens danger of present death is of such moment, that to shun that, it may be counted a smal matter, and commodious for the sicke to bring in other diseases, though uncureable. For if a convulsion happen by pricking a Nerve which we cannot heale by any remedies, then by cutting the Nerve asunder wee end the convulsion, but deprive the part into which that Nerve did goe, of the use of some voluntary motion. So if in any great joynt there happen a Luxation with a wound, because there is danger of convulsion by trying to restore and set right the Luxated part, wee are forced for shunning thereof, to attend the wound onely, and in the meane time to let alone the Luxation. Otherwise in implicate diseases if there be nothing which may urge, or call us from the ordinary cure, we must observe this order, that beginning with that affect, which hinders the cure of the principall disease, we prosecute the rest in the same and their proper order, untill all the diseases being overcome we shall restore the part affected to its integrity. Therefore let us take for an example, an ulcer in the Leg, a *Varix* (or big swollen veine) and a Phlegmonous tumor round about it; and lastly, a body wholly plethoricke and filled with ill humors; order and reason require this, that using the advise of some learned Physition we prescribe a convenient diet, and by what meanes we may, bring him to an equality by purging and blood-letting, and then we will scarifie in divers places the part where it is most swollen, then presently apply Leaches that so we may free it from the burden of the conjunct matter; then use Cauteryes to helpe the corruption of the bone, and in the meane time change the circular figure of the ulcer into an ovall, or triangular; then at the length we will undertake the cutting of the *Varix*, and cure the ulcer which remains according to Arte, and so at the length cicatrize it. In all this whole time the Patient shall neither walke, nor stand, nor sit, but lye quietly, having his Leg orderly and decently rowled up. But

Indications in implicate diseases.

An example of Indications in implicate diseases.

if

What we must
do when the
temper of the
part is differ-
ent from the
temper of the
whole body.

An artificiall
conjecture is
of much force
in Indications.

Indication
from similis-
tude.

Indication of a
subtile device.

Examples.

A Physition
should be of a
quicke apprehen-
sion.

Indications in-
dicative.

Coindicative.

Repaguant.

if (as it often happens) the temper of the hurt part, be different from the temper of the whole body, the manner of curing must be so tempered, that we increase the Dosis of hot or Cold medicines, according to the ratable proportion of the Indications requiring this, or that. Therefore imagine the part ulcerated to be such, as that it is two degrees dryer than the just temper; but the whole body to exceed the same temper in one degree of humidity: reason and Arte will require, that the medicine applyed to the ulcer be dryer by one degree than that which the part would otherwise require if it were temperate; but on the contrary let us suppose thus. The whole body to be one degree more moist than the temper requires, & the ulcerated part to be one degree dryer, truly in this case the medicine that is applyed to the ulcer by reason of the part it selfe, shall not be encreased in drynesse, but wholly composed and tempered to the Indication of the ulcer, because the force of the moisture exceeding in the like degree, doth counterpoise the superfluous degree of drynesse. But it is more easie by an artificiall conjecture to determine of all such things, than by any rules or precepts.

To these so many and various Indications, I thinke good to add two other; the One from similitude; the Other of a certaine crafty device, and as the latter Physitions terme it, of a certaine subtile stratageme. We draw Indication from similitude, in diseases which newly spring up and arise, as which cannot be cured by Indications drawne from their contraries, as long as their Essence is unknowne and hid; wherefore they thinke it necessary to cure them by a way and Arte like those diseases, with which they seeme to have an agreeing similitude of Symptomes and Accidents; Our Ancestors did the same in curing the French Pockes, at the first beginning thereof, as long as they assimilated the cure to that of the Leprosie, by reason of that affinity, which both the diseases seeme to have. But we follow crafty devices and subtile counsells, when the Essence of the disease wee meet with is wholly secret and hid, either because it is altogether of a hidden and secret nature, and which cannot be unfolded by manifest qualities, or else resides in a subject which is not sufficiently knowne to us, nor of a Physicall contemplation, as the Minde. For then we being destitute of Indications taken from the nature of the thing, are compelled to turne our cogitations to impostures and crafty counsells; and they say this Arte and Craft is of cheife use in Melancholy affects and fictions, which are often more monstrous and deformed than the Chimera so much mentioned in the fables of the Ancients; to which purpose, I will not thinke much to recite two Examples. A certaine man troubled with a Melancholike disease, I know not by what error of opinion, had strongly perswaded himself that he was without a head; the Physitions omitted nothing, by which they might hope to take this madd opinion out of his minde. But when they had in vaine tryed all medicines, at length they devised this crafty, but profitable device, they fastened and put upon his head a most heavy helmet, that so by the paine and trouble of his head nodding and drawne downe by that weight, he might be admonished of his error.

It is reported, another molested by the obscurity and darknesse of the same disease, did verily beleieve, that he had hornes upon his head; neither could he be drawne or diverted from that absurd and monstrous opinion, untill that binding up his eyes, they miserably bruised and seratched his forehead with the bony roughnesse of the lower parts of an oxes hornes, that so he begun to beleieve by the painefull drawing of the blood that ran downe his face, that those bloody hornes, were forcibly plucked from him. Ingenious Chirurgions in imitation of these examples may in like cases doe the like. For that case requires a man of a quicke apprehension and advice, who may give manifest proove of his diligence and skill by medicinall stratagems, as who forthwith can politickly device stratagems of divers sorts.

But, now comming to the end of this our tract of Indications, we must cheifly and principally observe; That of Indications some are Indicative; which absolutely and of themselves command this to be done; other coindicative, which indicate the same with the Indicative, and joyntly shew it to be done, but in some sort secundarily and not primitively; some are repaguant, which of themselves and their owne nature perswade quite contrary to that the indicative primitively did; or which disswade us from doing that, to performe which the indicative did perswade us; other correpugnant,

correpugnant, which give their voyce after the same forme and manner with the repugnant against the indicative, as the coindicative consent to and maintaine them. Let this serve for an example of them all.

A *Plethora*, or plenitude of humors of its owne nature, requires and indicates blood-letting, the Spring-time perswades and coindicatives the same, but to this counsell is quite opposite and repugnant, a weake faculty, and childhood is correpugnant.

Wherefore these foure must be diligently waighed and considered when we deliberate what is to be done, and we must rather follow that which the indicative, or repugnant shew and declare, as what the disease and strength of the Patient require, than that which the coindicative, or correpugnant shall perswade, because they have a weaker and but secundary power of indicating, and not essentiall and primitive. But because the kinds of Indications are so many and divers, therefore that the knowledge of them may be more perspicuous and lesse confused, I have thought good to describe & distinguish them by this following scheme.

A

A Table of Indications.

An Indication is a certaine plaine and compendious way which leades the Chirurgion to a certaine, determinate and proposed end for the cure of the present diseases of which there are 3. kinds,

The first is drawne from things natural which indicate their preservation by their like; of this kind are many other which are drawne,

either

- From the strength and faculties of the patient. For whose preservation, oftentimes the proper cure of the disease must be neglected; for where these faile, it is impossible the Chirurgion should performe what he desires and expects.
- From the temperment, as if the Patient shall be—Sanguine, Cholericke, Flemmaticke, Melancholicke. Of preservation of which the Chirurgion must have care, and if they swarve from equallitie, to reduce them to that which formerly they naturally were.
- From the habite of the body, as the patient shall be—Dainty and delicate, Slender and weak, Low of stature, Rare, or else dense and compacte.
- From the native condition of the hurt or affected part, in which we consider, either—The substance thereof, as for as much as it is simular we consider whether it be hot, cold, moist, dry, or as it is organickall, and then whether it be a principall and noble part, or a subordinate and ignoble part. Or, the sense whether quicke, or dull, by reason whereof the eye cannot endure such sharpe & acride medicines, as simple flesh can. Or the forme, figure, magnitude, number, site, connexion, action, use.
- From the Age, for each age yeelds his peculiar Indications, hence you may observe most diseases to be incureable in old men, which are easily cured in yong, others which in youth admit of no cure, unless by the change of age and th' ensuing temperament.
- From Sexe, for medicines work upon weomen farre more easily than upon men.
- From the time of the yeare, for some meats and medicines are fit in Winter, some in Summer.
- From the Region, for as there are diversities of situations and habits of places, so also there are motions of humors, and manners of diseases: hence it is that wounds on the head at Paris, & sore shins at Avignon are more difficult to be cured.
- From the times of diseases, for some things in the beginnings, others in the encrease, state and declining of the disease, are more convenient.
- From the manner of diet, for this, as the proper temper, must be preserved. Wherefore such must be fed otherwise who live daintily, than those who leade their lives sparingly and hardly. Hereunto adde certaine peculiar natures, which by a certaine hidden property are offended at this, or that kinde of meate. For there are some which not onely, cannot concoct Ptisane, Apples, Soles, Pertridge, Water and such like, but can scarce behold them without Nauseousnes.

The second is drawne from things not naturall, which one while indicate their preservation by their like, another while their change by their contraries; for so

If the Aire, have as it were conspired with the disease by a certaine similitude of qualities to the destruction of the Patient, it must be corrected by its contraries according to Arte. But if by the disagreement of qualities it resist the disease, it must be kept in the same temper.

The third from things contrary to nature which shew they must be taken away by the use of their contraries, as

The disease, the Indication being drawne from these

The greatest The complication or commixtion with others so

In implicate, or mixed diseases we may draw Indications from these 3. heads,

From that which is most urgent

From the cause

and From that, without which the disease can not be taken away

such are

Bitternesse of paine, a defluxion into a part, a Varix, or bigge swollen veine, a distemperature if they be joyned with a disease.


Cause of the disease

Symptomes

which two oft indicate & require medicines contrary to the disease.

CHAP. XXIII.

Of certaine wonderfull and extravagant wayes of Curing diseases.

 S Monsters sometimes happen in nature, so also in diseases, and in the events and cures of diseases. I understand by monsters certaine marvellous successes in diseases, or certaine wayes of curing them, which swarve from Arte, and happen besides reason, nature, and common use.

Monstrous diseases,

Alexander ab Alexandro, and *Peter Gilius* tell, that in *Apulia* a part of *Italy*, they have a certaine kind of Spider very frequent, the natives call it *Tarentula*, *Petrus Rhodius* calls it *Phalangium*; The Inhabitants finde these Spiders in the first heate of Summer so venenate and deadly, that whomsoever they touch with their virulent biting, he presently, without he have speedy remedy, deprived of all sense and motion falls downe, or certainly if he escape the danger of death, he leades the remnant of his life in madnesse. Experience hath found a remedy by Musicke for this so speedy and deadly a disease; Wherefore as soone as they can they fetch Fiddlers and Pipers of divers kinds, who by playing and piping may make Musicke, at the hearing whereof, he which was fallen downe by reason of the venomous bite, rises cheerfully and dances so long to their measures and tunes, untill by the painfull & continued shaking and agitation of the whole body, all the malignity is dissipated by transpiration and sweates.

The wonders full force of the bite of a certaine Spider,

Musicke the remedy therof.

Alexander adds that it happened once in his sight, that the Musitions their winde & hands failing them ceased playing, and then the Danser presently fell downe as if hee had beene dead; But by and by the Musicke beginning anew, he rise up againe and continued his dancing till the perfect dissipation of the venome. And that it hath happened besides, that one not so perfectly healed, certaine reliques of the disease yet remaining, when a long time after he heard by chance a noise of Musitions, he presently fell a leaping and dancing, neither could he be made to leave before he was perfectly cured.

Some affirme according to the opinion of *Asclepiades*, that such as are Franticke are much helped with a sweet and Musicall harmony. *Theophrastus* and *Aulus Gellius* say that the paine of the Goute and Sciatica are taken away by Musicke. And the Sacred Scripture testifies, that *David* was wont by the sweet sound of the Harpe to refresh and ease King *Saul* when he was miserably tormented by his evill spirit. *Herodotus* in *Clio* tells, that *Craesus* the King of *Lydia* had a Sonne, which of a long time could not speake, and when hee came to mans estate was accounted dumbe: but when an Enemy with his drawne sword invaded his father (overcome in a great fight, and the City being take in which hee was) not knowing that hee was the King, the young man opened his mouth endeavoring to cry out, and with that striving and forcing of the Spirit hee broke the bonds and hinderances of his tongue, and spoke plainly and Articulately, crying out to the Enemy that hee should not kill King *Craesus*. So both the Enemy withheld his sword, and the King had his life, and his Sonne had his speech alwayes after. *Plutarch* in his booke, Of the benefit to be received from our Enemies, tells that a Theſſalian called *Proteus*, had a certaine inveterate and incurable ulcer in a certaine part of his body, which could not be healed, before hee received a wound in a conflict in the same place, and by that meanes the cure being begun afresh, the wound and ulcer were both healed.

Musicke gives ease to paine.

A strong perturbation of the minde helps by moving the spirits.

Quintus Fabius Maximus, as *Livy* writes, was long and very sicke of a quartaine Ague, neither could have wished successe from medicines administred according to Arte, untill skirmishing with the *Allobroges* hee shook off his old feaverish heate, by a new heate and ardent desire of fighting. It was credibly reported to me of late by a Gentleman of the Lord of *Lansackes* Chamber, that there was a French Gentleman in *Polonia* who was greivously tormented with a quartaine

Chance sometimes exceeds Arte.

Feaver, who on a time walking upon the banke of the River Wixell to take away the irkesomenesse of his fit, was thrust in jeast into the River by a friend of his that met him by chance, by which (although hee could swim, as hee also knew that thrust him in) hee conceived so great feare, that the Quartaine never troubled him after. King Henry the second commanded me to goe from the Campe at Amiens to the City Dorlan, that I might cure those that were hurt in the conflict with the Spaniards, the Captaine S. Arbin although at that time he had a fit of a quartaine ague, yet would hee be present at the fight, in which being shot through the side of his necke with a Bulle, hee was stricken with such a terror of death, that the heate of the Feaver was asswaged by the cold feare, and he afterwards lived freed from his Ague.

Observat. 4.
lib. 2.

Franciscus Valleriola the famous Physition of Arles, tells that John Berlam his fellow Citizen troubled with a Palsey of one side of his body for many yeares, his house taking fire, and the flame comming neere the bed in which he lay, he stricken with a great feare, suddenly raised himselfe with all the force hee had, and presently recovering the strength of his body, leapes out at the window from the top of the house, and was presently cured of his disease, sense and motion being restored to the part, so that afterward hee went upright without any sense of paine, who lay unmoveable for many yeares before. Hee tells the like in the same place of his cosen John Sobiratus; hee was a long time lame at Auignion, by reason that the nerves of his hams were shrunk and drawne up so that hee could not goe; being moved with a vehement and suddaine passion of anger against one of his servants whom hee endeavored to beate, hee so stirred his body that forthwith the Nerves of his hams being distended, and his knees made plyant hee began to goe and stand upright without any sense of paine, when hee had beene crooked about the space of six yeares before, and all his life after he remained sound.

Cap. ult. lib.
de cur. rat.
per sanguinis
miss.

Galen by a
dreame cures
the Sciatica.

Galen tells hee was once fetched to stanch the bleeding, for one who had an Artery cut nere his ancle, and that by his meanes hee was cured without any danger of an *Aneurisma* (i) a relaxation of a veinous vessell, and besides by that accidentall wound hee was freed from most greivous paine of his hippe, with which he was tormented for foure yeares before; but although this easing of the paine of the Sciatica happened according to reason by the evacuation of the conjunct matter, by the artery of the ancle of the same side being opened; yet because it was not cut for this purpose, but happened onely by chance, I judged it was not much dissenting from this argument.

Pliny writes that there was one named Phalereus, which casting up blood at his mouth, and at the length medicines nothing availing, being weary of his life, went unarmed in the front of the battell against the enemy, and there receiving a wound in his breast, shed a great quantity of blood, which gave an end to his spitting of blood, the wound being healed, and the veine which could not containe the blood being condensate.

At Paris Anno 1572. in July a certaine Gentleman being of a modest and courteous cariage fell into a continuall Feaver, and by that meanes became Franticke, moved with the violence of which hee cast himselfe headlong out of a window two storyes high, and fell first upon the shoulder of Vatterra the Duke of Alenzons Physition, and then upon the pavement; with which fall hee cruelly bruized his ribbs and hippe, but was restored to his former judgment and reason. There were present with the Patient besides Vatterra, witnesses of this accident these Physitions, Alexis, Magnus, Duretus, and Martinus. The same hapened in the like disease, and by the like chance to a certaine Gascoyne lying at the house of Agrippa in the Paved streete.

Othomannus Doctor of Physicke of Mompelier and the Kings professor, told me that a certaine Carpenter at Broquer a village in Switzerland, being franticke cast himselfe headlong out of an high window into a river, and being taken out of the water was presently restored to his understanding.

But if we may convert casualties into counsell and Arte, I would not cast the Patient

Patient headlong out of a window. But would rather cast them sodainely and thinking of no such thing into a great cesterne filled with cold water, with their heads foremost, neither would I take them out untill they had drunke a good quantitie of water, that by that sodaine fall and strong feare, the matter causing the Frenzy might be carryed from above downewards, from the noble parts to the igno- noble; the possibility of which is manifest by the forerelated examples, as also by the example of such as bit by a mad Dogge, fearing the water are often ducked into it to cure them.

The cause of the last recited cures.

CHAP. XXIIII.

Of Certaine juggling and deceiptfull wayes of Curing.

Here I determine to treat of those Impostors, who taking upon them the person of a Chirurgeon, doe by any meanes either right or wrong put themselves upon the workes of the Arte; but they principally boast themselves amongst the ignorant common sort, of setting bones which are out of joynt and broken, affirming as falsly as impudently that they have the knowledge of those things from their Ancestors; as by a certaine hereditary right; which is a most ridiculous fiction; for our mindes when we are borne, is as a smoth table, upon which nothing is painted. Otherwise what need wee take such labour and paines to acquire and exercise sciences? God hath endued all brute beasts with an inbred knowledge of certaine things necessary for to preserve their life, more than man.

Sciences are not hereditary

But on the contrary hee hath enriched him with a wit furnished with incredible celerity and judgment, by whose diligent and laborious agitation he subjects all things to his knowledge. For it is no more likely, that any man should have skill in Chirurgery because his father was a Chirurgeon, than that one who never endured sweat, dust nor Sunne in the field, should know how to ride and governe a great horse, and know how to carry away the credite in tilting, onely because hee was begot by a Gentleman and one famous in the Arte of Warre.

There is another sort of Impostors farre more pernicious and lesse sufferable, boldly and insolently promising to restore to their proper unity and seate, bones which are broken and out of joynt, by the onely murmuring of some conceited charmes, so that they may but have the Patients name and his girdle. In which thing I cannot sufficiently admire the idlenesse of our Country-men so easily crediting so great and pernicious an error; not observing the inviolable law of the ancient Physitions, and principally of Divine Hippocrates, by which it is determined, that three things are necessary to the setting of bones dislocated and out of joynt; to draw the bones asunder; to hold the bone receiving, firmly immoveable with a strong and stedy hand; to put the bone to be received into the cavity of the receiving. For which purpose the diligence of the Ancients hath invented so many engines, Glossocomies and bands, lest that the hand should not be sufficient for that laborious worke; What therefore is the madnesse of such Impostures to undertake to doe that by words, which can scarce be done by the strong hands of so many Servants, and by many artificial engines?

A most impudent sort of Impostors.

Three things necessary for the cure of a Luxation,

Of late yeares another kind of Imposture hath sprung up in Germany, they beate into fine powder a stone within there mother tongue they call *Bembruch*, and give it in drinke, to any who have a bone broken, or dislocated, and affirme that it is sufficient to cure them. Through the same Germanie there wander other Impostors who bid to bring to them the Weapons with which any is hurt; they lay it up in a secret place and free from noise, and put and apply medicines to it, as if they had the patient in distress, and in the meane time they suffer him to go about his busines, & impudently

affirme

affirme that the wound heales by litle and litle by reason of the medicine applyed to the weapon,

But it is not likely that a thing inanimate which is destitute of all manner of sence, should feele the effect of any medicine; and lesse probable by much, that the wounded party should receive any benefit from thence. Neither if any should let mee see the truth of such juggling by the events themselves and my owne eyes, would I therefore beleieve that it were done naturally and by reason, but rather by charmes and Magicke.

In the last assault of the Castle of *Hisdin* the Lord of *Martignes* the elder was shot through the breast with a Musket bullet. I had him in cure together with the Physitions, and Chirurgions of the Emperoure *Charles* the first and *Emanuel Philibert* the Duke of Savoy, who because hee entirely loved the wounded prisoner, caused an assembly of Physitions and Chirurgions to consult of the best meanes for his cure. They all were of one opinion, that the wound was deadly and incurable, because it passed through the midst of his lungs, and besides had cast forth a great quantity of knotted blood into the hollownesse of his brest.

There was found at that time a certaine Spaniard, a notable Knave, and one of those Impostors who would pawne his life, that hee would make him sound; wherefore this Honorable Personage being in this desperate case was committed to his care. First of all hee bid they should give him the Patients shirte, which hee tore into shreds and peeces, which presently framing into a Crosse, hee laid upon the wounds whispering some conceived or coined words, with a low murmure. For all other things hee wished the Patient to rest content, and to use what diet hee pleased, for hee would doe that for him, which truly, he did. For hee eate nothing but a few Prunes, and drunke nothing but small beere, yet for all this the wounded Prince died within two dayes; the Spaniard slipt away, and so scaped hanging. And whilst I opened the body in the sight of the Physitions and Chirurgions to embalme him, the signes and accidents of the wound did evidently and plainly appeare to be as we had pronounced before.

What wounds
may be cured
onely by lint,
or by tents and
water.

And there be also other Iugling companions of this tribe, who promise to cure all wounds with linte, or Tents either dry, or macerated in oyle, or water, and bound to the wound, having murmured over some charme or other, who have had sometimes, good successe, as I can witnesse. But the wounds upon which triall was made were simple ones, which onely required union, or closing for to perfect the cure. So verily the bones of beasts when they be broke, grow together by the onely benefit of Nature. But when the affect shall be compound by diversity of Symptomes, as a wound with an ulcer, inflammation, contusion and fracture of a bone, you must hope for no other from Tents or Lints, nor charmes than death. Therefore the common sort who commit themselves to these Impostors to be cured, doe not onely injure themselves, but also hurt the Common-wealth, and the common profit of the Citizens; for whose good and justice sake a prudent Magistrate ought to deprive impostors of all freedome in a free and Christian common-weale.

Witches, Conjurers, Diviners, Soothsayers, Magitians and such like, boast of curing many diseases; but if they doe or performe any thing in this kind, they doe it all by slights, subtilties and forbidden Arts, as Charmes, conjurations, Wircherics, Characters, Knots, Magicall Ligatures, Rings, Images, Poysons, laces tyed a-crosse, and other damnable trickes, with which they pollute, pervert and defame the prime and sacred Arte of Physick & that with the danger of mens lives. Who certainly are to be banished by the lawes of our country, especially seeing it is decreed in

Deuteron. 18. *Moses Law.* Let none be found among you that useth witchcraft, or a regarder of times, or a marker of the flying of Fowles, or a Sorcerer or a Charmer, or that counselleth with Spirits, or a Soothsayer, or that asketh counsell at the dead; for all that doe such things, are abomination to the Lord, and because of these abominations the Lord thy God doth cast them out before thee. But the Miracles of our

our Lord Iesus Christ the Sonne of God, and of his Saints and Apostles in curing diseases beyond nature and all Arte, are of another kind, which we ought to beleieve to firmly and constantly, that it should be counted an impiety for a Christian to doubt of them. All holy writings are full of these, as to give sight to the blinde, hearing to the deafe, power to goe to those sicke of the Palsey, to drive forth Devils, to cure the Leprosy, to give fruitfullnesse to weomen, to raise the Dead, and performe by the holy Ghost other Miracles which exceed the condition and law of Nature: whom here we earnestly intreat to free and protect us from uncleane Divels and the spirits of diabolicall deceit, and to give us the minde that we may will and be able alwayes to aspire to Heaven and fasten the hope, safety and anchor of all our fortunes in God alone. Amen.

*The End of the first
Booke.*

F 3

T H E





THE SECOND BOOKE OF LIVING CREATVRES, AND OF THE EXCELLENCY Of Man.



Efore I come to speake of the Anatomic of mans body; I have thought fit to say a little of the nature of brute Beasts. The difference of brute beasts. There is betweene beastes a great deale of difference by nature; for of these, some are hardy and bold, others fearefull; some wilde and savage, others tame; some walking in heards, others wandring alone; some covered and defended with shels and scales, as the Crocodile, the Tortois and many kinds of fish, others have stings and prickles.

The Horse hath his hard and strong hooves, his crest (as being a generous beast) beset with a thicke and harsh mane, The defence of the magnanimous Lion, are his teeth, his crooked pawes and taile; Bulls are formidable by their hornes; the Boare by his tuskes standing out, as it were naturall hunting speares. The Hare being a timorous creature, is naked and unarmed, but in recompence thereof nature hath made her nimble and swift of foot. For what the more noble and couragious beasts have in armes, is supplied in the fearefull by nimbleness and celerity. Infinite are the other endowments of brute beasts, and such as can hardly be imagined, or described. For if wee diligently search into their nature, wee shall observe the impressions and shadowes of many vertues, as of magnanimitie, prudence, fortitude, clemency, and docillitie: for they entirely love one another, follow those things that are good, shunne those that are hurtfull, and gather and lay up in store those things that are necessary for life and food. Lastly, they give undoubted presages of the weather, and Aire. They have taught men many things, and are of a most exquisite and quicke sense; of rare Art in vocall musicke, prudent and carefull for their young, and faithfull lovers of their native soile. They are religiously observant of the rights of friendship and chastitie. They have their weapons whereby they are prepared, both to invade, and to defend themselves being invaded; they submit themselves to the discipline of man, practise and imitate his speech, and mutually prattle and chant one to another. They have a kind of weale-publique amongst themselves, and know

Some shadow
of vertue in
beasts.

know how to preserve their present welfare, and to depell the contrary, being in this their owne Counsellors, and not tutored by man. Yea man is beholden to them for the knowledge of many wholesome things. The consideration of which bred so great a doubt amongst the ancient Philosophers, that it was a question amongst them, whether beasts had use of reason, or no? Therefore also the wise *Salomon* sends us for examples of parsimonie and diligence unto the Ant or Pismire; and *Esaïas* in exprobration of the people of Israel for their ingratitude and rebellion against God, sends them to the Oxe and Ass; for they doe not onely know, but reverence their Maisters.

Lib. 8. cap. 27.

The crafti-
nesse of Beares,

The bird Ibis
the first inven-
ter, or shewer
of Clusters.

The invention
of removing
a Cataract.

The invention
of Phleboto-
mie,

A preservative
against thun-
der,

But from whence is the knowledge of these medicines, wherewith the Art of Physicke is so richly adorned, but from brute beasts, as *Pliny* affirmeth. The infallible vertue of the herbe *Dictamnus*, in drawing darts out of the flesh, was taught us by the Hart, who wounded with the Huntsmans darts or arrowes, by meanes hereof drawes out the weapons which remaines sticking in her. Which is likewise practised by the Goates of Candie, as *Aristotle* writeth. The wonderfull effect which *Celandine* hath upon the sight, was learnt by the practise of Swallowes, who have bin observed with it to have beineared, and so strengthened the eyes of their young. Serpents rubbe their eyelids with fennell, and are thought by that meanes to quicken and restore the decaying sight of their eyes. The Tortois doth defend & strengthen her selfe against the biting of Vipers, by eating of favorie. Beares by eating of Pismires, expell that poison that they have contracted by their use of Mandrakes. And for correction of that drowzinesse and sloth which growes upon them by their long sleepe in their dens, they eate the herbe *Aron* (i) Cuckepint. But the Art they use in the entising and catching of Pismires is very pretty, They goe softly to the holes or hilles of the Pismires, and there lay themselves all their length upon the ground, as if they were dead, hanging out their tongue wet with their foame, which they draw not againe into their mouth, before they feele them full of Pismires, which are intised by the sweetnesse of the foame: And having taken this as a purging medicine, they expell by the guts, those ill humors wherewith they were offended. Wee see that Dogges give themselves a vomit, by eating of a kinde of grasse, which is from thence called Dogge-grasse. Swine, when they finde themselves sicke, will hunt after smalt or river lobsters. Stockdoves, Blackbirds, and Partridges, purge themselves by bay leaves. Pigeons, Turtels, and all sort of Pullen, disburden themselves of grosse humors, by taking of Pellitory of the wall. The bird Ibis (being not much unlike the Storke) taught us the use of Clusters. For when he finds himselfe oppressed with a burden of hurtfull humors, he fills his bill with saltwater, and so purgeth himselfe by that part, by which the belly is best discharged. The invention of the way of removing the Cataract of the eye, wee must yeeld unto the Goate, who by striking by chance against the thorny bushes, pulls off the Cataract which hinders the sight, and covers the ball of the eye, and so recovers his sight. The benefit of Phlebotomie, we owe unto the Hipporamus or River-horse, being a kinde of Horse, and the inhabitant of the river Nilus; who being a great devourer, when hee finds himselfe surcharged with a great deale of bloud, doth by rubbing his thigh against the sharpe sands on the bankeside, open a veine, whereby the superfluous bloud is discharged, which he stoppeth likewise when it is fit, by rowling himselfe in the thicke mudde. The Tortois having chanced to eate any of the flesh of a Serpent, doth make *origanum* and marjerom her Antidote. The ancients found helpe from brute beasts, even against the dreadfull and none-sparing force of lightning; for they were of opinion that the wings of an Eagle were never stricke with lightning, and therefore they put about their heads little wreathes of these feathers. They were perswaded the same thing of the Scale, or Sea-calse, and therefore were wont to encompasse their bodies with his skinne, as a most certaine safeguard against lightning. It were a thing too long, and laborious, to speake of all those other muniments of life and health (observed here and there by *Aristotle* and *Plinie*) which we have learnt of brute beasts. I will therefore end this Chapter, after that I have first added this; That we are beholding to beasts not onely for the skill of curing diseases, and of preservation of health, but for our soode, our raiment, and the ornament and beautifying the bodies.

Of the Faculty of brute Beasts in Presaging.

THe first knowledge and skill of Prognostication, and observation of weather by the Aire, was first delivered unto us from beasts of the land and water, and from fowle. For we see in daily observation, that it is a signe of change of weather, when Lambes and Rammes doe butt at one another with their hornes, and playing wantonly doe kicke, and keepe up their heeles. The same is thought to bee presaged when the Oxe lickes himselfe against the haire, and on the sodaine fills the Aire with his lowing, and smells to the ground, and when he feedes more greedily than he used to doe. But if the Pismires in great multitudes fetch their prey so hastily, that they runne and tumble one upon another in their narrow pathes, it is thought a signe of raine; As is also the busie working of Moales, and the Cats rubbing and stroaking of her head and necke, and above her eares, with the bottome of her feete. Also when Fishes play and leape a little above the water, it is taken for a signe of raine. But if the Dolphins doe the same in the sea, and in great companies, it is thought to presage a sodaine storme and tempest. Whereby the Marriners forewarned, use all care possible for the safetie of themselves and their shippes, and if they can, cast Anchor. And it is sufficiently knowne what the louder croaking of Frogges than ordinary portends.

What the butting of Rams signifies.

Presages of raine.

The signe at sea of a storme at hand.

But the facultie of birds in this kinde of presaging is wonderfull. If Cranes flie through the aire without noise, it is a signe of faire weather, and of the contrary, if they make a great noise and flie stragglingly. As also if Sea-fowle flie farre from the sea, and light on the land. The crie or scritchling of Owles portends a change of the present weather, whether foule or faire. *Plutarch* saith, that the loude cawing of the Crow betokens windes and showres, as also when he flappes his side with his wings. Geese, and Duckes, when they dive much, and order, and prune, and picke their feathers with their beakes, and crie to one another, foretell raine; and in like manner Swallowes when they flie so low about the water, that they wet themselves, and their wings. And the Wren, when he is observed to sing more sweetly than usuall, and to hop up and downe. And the Cocke when he chants, or rather crows presently after the setting of the Sunne. And Gnats, and Fleas, when they bite more than ordinary. If the Herne soare aloft into the aire, it betokeneth faire weather, if on the contrary he flie close by the water, raine. If Pidgeons come late home to the Dove-house, it is a signe of raine. If Bats flie in the evening, they foreshew wet weather. And lastly, the Crocodile layes his egges in that place, which must be the bounds of the overflowing of the river Nilus; And therefore he that first meetes with these egges, tels the rest of the countrie people, and shewes them how high the floud will rise, and what inundation it will make upon their grounds. A thing most worthy of admiration, that in this monster, there should be that strong facultie of presaging.

The Crocodile by laying her egges, shewes the bounds of the increase of the river Nilus.

Of the Industry of Fishes.

MAny sea-Fishes, when they feele a tempest comming, doe gravell or balast themselves, to the end they may not be tossed up and downe at the pleasure of the waves. Others when the fury of the sea is at the hight, hide themselves in the holes of rockes. But in that they swim against the streame, they doe it, for this cause and reason, that the force of the streame, and the floud may not take from them, and strike off their scales, and that their gills may not fill with water which would hinder their swimming; and intercept their respiration. As by the same advise Cranes flie against the winde, whereas if they should flie downe the winde, their feathers would be displaced and broken, and they would not be able to flie.

How Fishes provide for their safetie against a storme:

How they swimme against the streame,

Of the industry of Birds in the building of their neasts.

Of what
things birds
build their
neasts.

In what shape.

With what
care Spar-
rowes breed
their young.

THe industrie of Birds in the building of their neasts, is such, that it doth farre exceede the art and skill of all Mafons, and Architects. From whence it is become a Proverbe, *That men know, and can doe all things but make Birds neasts.* They are built within with wooll, and feathers, and such kinde of soft things, which are as a kinde of a pallet for the young ones. Swallowes build their neasts in a round forme, that they may be the more firme, and lesse subject to be hurt by any thing that shall strike against them, and likewise more capacious. They chuse their matter out of dirt and chaffe (interlacing it with many strawes) as it were their plaster, or lime. Those that build in trees, doe make choise of the soundest boughes, as if they meant to have them as a sure foundation for the building which they should erect thereon. The Cocke and the Henne doe by turnes sit over their egges, and likewise fetch their meate, interchanging each others labour, neither doe they ever forsake their young, before they are able to get their owne living. I had at my house a great number of Sparrowes neasts in earthen pots, And when the young ones begun to waxe pretty bigge, and to be covered with feathers, I made the whole neast be taken down, and set upon the ground, that I and my friends might delight our selves in beholding the care of the old ones in the feeding of their young, for they feede them every one in order, skipping none, neither will they (to the wrong of the rest) give one two parts, although he gape, and be importunate for it.; dividing most justly to every one his owne share, according to the exact rule of distribution. And often times for experiment, I would make triall with a strange Sparrow of the same age, laid neere, or put among the rest of the young ones, whether the old ones would feede the stranger, as if it were legitimate. But this as a stranger and a bastard they would suffer to starve, skipping it when it gaped after the meate. And in like manner Lambes and young Kiddes doe in the fields, in the midst of a great flocke, runne every one to his owne damme, who being most certainly able to distinguish betweene the legitimate and a bastard, will not suffer her selfe to be suckt but by her owne young.

Of the industry of Spiders.

How the
Spiders weave

How they
catch their
prey.

THe Spider spinnes her web with wonderfull artifice, hanging and fastening it to every tacke or stay that is nigh, drawing of his thread, and running upwards, and downwards, and every way. And although the diligence of the chamber maid beates downe, and marres this pendulous and new begunne worke, yet her seate and her hold, the Spider keepes still, neither is she, or will she desist from the worke shee hath begunne, but in a very short time, weaves a great deale more unto the ruines of her former worke, than can bee unweaved againe with much labour. So that from hence all cloth and linnen Weavers, all imbroiderers, and workers with the needle, (you will easily thinke) have learnt their Arts, if either you observe the exactnesse of the weaving, the finenesse of the thred, or the continuation and indissoluble knitting together of the whole web; for being abrupt and troubled with no ends of threds at all, it resembles a thinne membrane, annointed with a kinde of glew, wherewith when the prey is entangled, the Spider runnes presently in, and as it were drawes her nets, and infolds, and takes the captive after the manner of huntsmen. If this were not daily scene with our eyes, it would be thought fabulous.

Of Bees.

Bees chuse
themselves a
King.

I cannot passe in silence the great industry of Bees. For having established a kinde of Weale-publique, they make election of a King, who is such a one, as in proceritie of body, and excellencie of feature, exceedeth all the rest. He is remakeable by his short wings, his straight legges, his grave gate, and in stead of a Diadem or regall Crowne, either he hath no sting, or else doth not use it, which is the Artillery of the rest. He never goeth unattended out of the hive, but alwaies invironed with a princely retinue,

retinue, the rest of his traine following after, neither goes he at any time abroad, but upon urgent affaires which concernes the whole state. His progresse is forewarned by the voice and sound of trumpets, and as it were with singing, and they all draw nigh. Every one gets as neere to his person as he can, and when he is weary with flying, they all beare him up with thir owne bodies.

On what place soever he alighteth, there they forthwith pitch their tents. If hee chance to die, they goe not abroad to feede, but stand all mourning round about the corps; then carrie him out of the hive, and (as it were) follow his hearse and bury him, and lastly, having with solemnity performed all the funerall rites and obsequies, they chuse themselves another King, for without a King they cannot live. He then taketh care of all things, having his eye every where, whilest that the rest intend the performance of the worke. And supervising all, giveth them encouragement, and chastiseth negligence. For their time of going forth for foode, they chuse a cleare and faire day; for they have a naturall facultie of presaging of the weather. They are such observers of iustice and equitie, that never, either with their sting, or by any other way, doe they molest any creature, neither doe they exercise and prepare their speares against any, but for the safegard of themselves and their hives.

Their pitching their tents.

Their obsequies for their dead King.

Their justice.

Of the care of Bees.

They manage and order their affaires in this manner, in the day time they appoint before their gates a station of watchmen, and guarders. In the night, they rest from their labours, so long, till that one (who is appointed to this charge) by one or two hummes, as by a sound of a Trumpet, rowseth all the rest. Then come they together to observe what is the state of the weather, which if they foresee will bee faire, then abroad goe they into the fields, and pastures. Some therefore bring into the hive little fascicles of flowers on their thighs, others water in their mouth, and others a dewey moisture gathered on their bodies. These are met by others, who receive their burdens, which they dispose in their due and proper places. Those that are sent out into the fields for foode, are the youngest and the smallest. And therefore if the winde chance to rise any thing high, they expect untill it cease, and that the force and violence thereof bee over. But if it continue violent, then doe they ballast themselves with a little stone flying close by the ground, to prevent their being driven out and fro by the force of the winde. They are exceeding diligent in all their businesse, and doe punish the sloth of the lazye oftentimes with death. Some of them are the builders, others polish the building, and the rest bring in their materials.

Their watch.

Their divers imployments.

The building in their arched hives is with wonderfull artifice, being made with two doores, one to come in, and the other to goe out at. They have all things alike, least that the inequality, either of their food or labour, should give occasion of dissention. Their care is, that their houses may shew both state and handfomnesse. Idle droanes, borne for nothing but to eate, and consume the fruits of their labours, they chase from their hives. Those that chance to lose their stings, are utterly disabled, and in a short time their guts come out that way, and they die. They bring to their owners wonderfull increase of wax and honey.

They punish sloth with banishment.

Aristomachus the Philosopher doth boast, that for fiftie eight yeares together, hee had with great care beene a nourisher of Bees, onely that he might the better attaine to the knowledge of their state and condition.

Aristomachus a diligent observer of Bees.

Of Pismires, and Ants.

Neither truly is the industry, diligence, and experience of the Pismire lesse worthy of admiration, than that of the Bees. Insomuch as that *Salomon* bids the sluggard to take an example of diligence from the Pismire. Truly if experience did not witnesse it, it would seeme incredible, that so small a creature should be able to store up such abundance of corne, to dispose and manage her affaires in that good order

Lib. 11. C. 30

Wonderfull
care.

order that we see she doth. *Plinie* saith, that they have among them the forme of a well governed and well ordered common weale. For how pretty a sight it is to see them, when they seize upon a graine which they have a minde to carrie away, how they set to it, and lift it with head and shoulders. And how least the corne which they carrie to their store-house, should put forth and grow, they bite it at one end. If it be so bigge that they cannot carry it into their little hole, they divide it in the middle. If it be dampish, they lay it out to drie in the Sunne and open aire. When the Moone is at the full, they follow their worke in the night, when shee doth not shine, they take their rest, whereby they shew themselves to have some knowledge of heavenly things. *Plinie* affirmeth that they have their set Faires and Markets, whither they come in great companies, and where they use to establish leagues of amitie and friendship one with another. And when one markes them well, would hee not thinke that they were in conference one with another, and that they did discourse among themselves of their businesse? Doe wee not see that the often trampling of their little feete doth weare a path even upon hard flint stones?

There is no-
thing but may
be attained by
diligence.

From whence wee may note, what in all kinde of things is the effect of assiduitie. They say also that they performe the rites of buriall one unto another, after the manner of men. What words shall I use (saith *Plutarch*) to expresse sufficiently the diligence and industry of the Pismires. There is not among all the great things in nature, a sight of greater wonder than these. For in the Pismires are seene the markes of all vertue. Their great meetings argue that they maintaine a kinde of friendship.

The formes of
all vertues ex-
prest in Pism-
mires.

Their alacritie in the undergoing of their laboures, seemes to shew their fortitude and magnanimity; and lastly, they are eminent examples of temperance, providence, and justice. Their mutuall charitie appeareth in this, that if one of them that is not loaden meets another (in one of their narrow paths) that is, hee will give him the way, that hee may the better goe on in his intended journey. They say that the first entrance into their hole, is not straight, but full of many diverticles and crooked paths, which all end, which will bring you to three little cells; in one of which they have their conventicles, in the other they lay up their provisions, and in the third they bury the carcases of their dead. This doth *Plutarch* speake concerning Pismires.

Of Silke-Wormes.

With the industry of these creatures, I shall not unfitly joyne that of the Silkewormes, of whose paines and care, both in the making of their nests, and the spinning of their threed and bottomes (wherewith Kings are so magnificently adorned) Philosophers have written very strange things.

Diligence the
mother of
wealth.

And who can chuse but wonder at those great endowments of skill and knowledge, and that exceeding industry, (the mother of so much wealth) in the little body of so small a creature? The providence therefore of God, doth not onely appeare in this, that hee hath adorned each creature with a peculiar and proper endowment, but in this especially, that on the least creatures of all, hee hath bestowed the greater portion of skill, industry, and ingenuity to supply their defect of bodily strength.

Of the love of Beasts one towards another and
to their young.The industry
of Partridge
in preserving
their young.

Plutarch writeth; That all kinde of creatures beare a singular love, and have a kinde of care of those thatt are generated of them, and the industry of the Partridges, this way is much commended; for during the time that their young ones are weake and unable to flie, they teach them to lie upon their backs, and to hide themselves among the cloddes on the ground, that so being almost of the same colour, they may not be discerned by the Faulkoner. But if notwithstanding, they see
any

any body comming, and that hee is neere them, they doe with a hundred dodges and stoopings of themselves, as if they were wearie with flying, entise him away from their young to follow after them, and when they have their purpose, they then, as if they had recovered some fresh strength, fly quite away; who can but wonder at this both affection and subtilty?

Neither are those things lesse wonderfull that are reported of Hares, for when they would goe to their feate, they sever their young, and commit them to the trust of divers places, it may be two acres asunder one from another, least peradventure, a Huntsman, a dogge, or any man should chance to come that way, and they might be in danger to be lost at once. And then after they have traced up and downe, hither and thither, and every way that the dogges may not trace them, nor the Huntsman pricke them, they take a leape or two, and leape into their formes.

How Hares provide for themselves and their young, for feare of hunters.

Nor inferior to this is the craft of the Hedghogge, for when the Foxe pursueth him, and is now at his heeles, hee rowles himselfe up in his prickles like a chesnut in the outward shell, so that every part being rounded and encompassed with these sharpe and dangerous prickles, hee cannot be hurt. And so saves himselfe by this tricke; for his young he provides in this manner.

In the time of Vintage he goes to the vines, and there with his feete hee strikes off the boughs and the grapes, and then rowling his body makes them sticke upon his prickles, and so doth as it were take his burthen upon his backe, and then returns to his hole; you would thinke that the grapes did move of themselves; the prey hee devides betweene himselfe and his young.

The care of the Hedghogge to provide for her young.

In Florida part of the West Indies they have a beast, which for the variety and deformitie of it I cannot passe over in silence; The natives call it Succarath, the Canibals, Su. It keepees for the most part about the rivers, and the sea-shore, and lives by



prey. When hee perceiveth that hee is pursued by the Huntsman, hee gets his young ones upon his backe, and with his taile, which is very long and broad, he covereth them, and so flying, provideth both for his owne, and their safetie; neither can he be taken by any other way but by pits, which those Savage men use to digge in the places neere which he is to runne, into which at unawares hee rumbles headlong. This Picture of him here, I drew out of *Thevets Cosmographic*.

Tom. 2. lib. 23 cap. 1.

Of the affection of Birds, and of Dogges, towards their Masters.

THe young Storke provides for the old which is disabled by age, and if any one of their equalls come to any mischance, that hee is not able to flie, they will give him their assistance, and beare him on their backs and wings. And there-fore

The picture of Storke.

fore this affection and piety towards the old ones, and as it were brotherly love towards their equals, is commended in the Storke.

The Henne in any kinde of danger gathers her chickins under her wings, and as it were with that guard, defendsthem as well as shee can. For their sake shee exposeth her selfe to the crueltie of the fiercest beasts, and will flie in the eyes of a dogge, a Wolfe or a Beare, that by chance offers to meddle with her chickins.

The fidelity
of Dogges.

But who is there that doth not admire the fidelitie and love of dogges towards their Masters, whereby they recompence them for their keeping? A dogge will never forsake his Master, no, if he be never so hardly used. For there is no man can finde a stick hard enough to drive that dogge cleane away from him which hath once taken a love to him. There is no kinde of creature that doth more certainly and readily remember his master, hee will know the voice of all the household, and of those which frequent the house. There cannot bee a truster keeper (as *Cicero* himselfe saith) than a Dogge is; I speake not of their faculty of smelling, whereby they follow their Masters by the foote, and finde them, neither doe I speake of those infinite examples of the fidelity of Dogges, which were too long to rehearse.

Doves free
from adultery

Pidgeons, as well the Cocke as the Henne, although they are all very venereous, yet they know no adultery, yea and the Henne will beare with the frowardnesse of the Cocke, neither will she ever leave him, but reconciling him unto her by her officious diligence, bring him to his wonted dalliance and kisses, neither is the love of either of them lesse towards their young.

Turtles never
couple twice.

There is the like mutuall bond of love betweene Turtles, for if one of them die, the survivor never solicites Hymen more, neither will he ever chuse other seate than a dry withered bough.

*Of the strength, piety, docilitie, clemency, chastity,
and gratitude of Elephants.*

Among the beasts of the field there is none more vaste, more strong, or more to bee feared, than the Elephant. His strength is sufficiently shovne by those towered Castles of armed men, which hee carries, and fiercely rusheth with into the battell. The Romane souldiers being otherwise of undaunted spirit, yet in that battell which they fought against *Antiochus* being terrified with the vastnesse and immanity of these bodies which they had never before seene, presently turned their backs and fled, which notwithstanding, it is a wonderfull thing what stories naturall Philosophers tell of the vertues of the Elephant.

Lib. 8. cap. 1.

The religion
of the Ele-
phant.

Plinie writeth, that an Elephant commeth very neere to the understanding that men have, and that hee hath a rude kinde of knowledge of language; that his facilitie and obsequiousnesse is wonderfull, that his memory in the performance of his wonted duties, is no lesse wonderfull. And for Religion (*Plutarch* saith) that they pray unto the gods, and sprinkle and purge themselves with salt water, and that with great reverence, they worship the Sunne at his rising, lifting their trunks up towards heaven, for want of hands. *Plinie* addeth, that they doe with the like reverence worship the Moone and the Starres. For it is related in the Histories of the Arabians, that at a new Moone the Elephants goe by troupes downe unto the rivers, and there wash themselves with water, and being thus purged, kneele downe and worship the Moone, and then returne to the woodes, the eldest going first, and the other following after according to their age.

Plinie lib. 8.
cap. 5.

Plutarch reporteth, that it happened once, that among the Elephants which were taught at Rome against the Panegyricke shewes, there was one that was something dull, and not so docile as the rest, which made him be despised by his fellowes, and often beaten by his master. But that this Elephant, that he might supply by diligence what he wanted in wit, was oftentimes observed in the night, by the light of the Moone, to be practising and conning what he had learnt of his Maister in the day time. For they were wont to bee taught to make letters, and also to present garlands

garlands to the spectators; and other such like trickes. But they can never bee brought to goe aboard a shippe, to bee carried over the sea into any strange land, unlesse their Master give them his word to assure them that they shall



returne againe to their owne native soile. They never hurt any one that doth not first provoke them. They never gender but in private out of sight, an argument of their modestie.

Of the Lamprey.

Least that the heat of affection may seeme to lie quenched under the waters, let us by one example, (it were an infinite thing to speake of all) see in what kinde of mutuall love the creatures of the water come short of these of the land. The Lamprey of all the creatures of this kinde doth worthily beare the praise for its pietie towards those of whom it was generated, its affection towards those that are generated of her; for first she breeds egges within her, which in a short time after are spauned. But shee doth not as soone as her young ones are formed and procreated, bring them straight way forth into the light after the manner of other fishes, that bring forth their young alive, but nourisheth two within her, as if shee brought forth twice, and had a second broode. These she doth not put forth before they are of some bignesse, then she teacheth them to swimme and to play in the water, but suffers them not to goe farre from her, and anon gapes and receives them by her mouth into her bowells againe, suffering them to inhabite there, and to feede in her belly so long as shee thinkes fit.

*That Savage, or brute beasts may
bee made tame.*

*Cosmograph.
Tom. 2. lib. 19.
cap 7.*

Thevet reporteth, that the Emperour of the Turkes hath at Caire (it was once called Memphis) and at Constantinople, many savage beasts kept for his delight, as Lions, Tigers, Leopards, Antilopes, Camels, Elephants, Porcupines, and many other of this kinde. These they use to leade about the citie to shew. The masters of them are girt with a girdle, hung about with little bells, that by noise of these bells the people may be forewarned to keepe themselves from being hurt by these beasts. But in hope of reward and of gifts, they shew them to Embassadours of strange nations, before whom they make these beasts doe a thousand very delightfull trickes, and in the interim, they play their countrey tunes and musicke upon their pipes, and other instruments, and make many sports in hope of gaine.

That Fishes also may be tamed.

But it is far more wonderfull, that the creatures of the water should be made tame, and be taught by the Art of man. Among which, the chiefeft are held to be the Eele. The same things also are reported of the Lamprey. For wee have it recorded, that *Marcus Crassus* had a Lamprey in his Fish-poole, that was so tame, and so well taught, that he could command her at his pleasure. Therefore as a domesticall and tame beast he gave her a name, by which when he called her, she would come. And when this Lamprey died, hee mourned for her in blacke, as if shee had beene his daughter. Which when his Collegue, *Cnaeus Domitius* objected to him, by way of reproach, he replying, told him, that he had buried three wives, and had mourned for none of all them three.

*That men were taught by beasts to polish, and to whet their
weapons, and to lie in ambush.*

Souldiers are carefull to keepe their weapons from rust, and therefore they carrie them to the Armorers to be polished. But in this care, many beasts are nothing inferior unto them; for Boares whet their tuskes against they fight. And the Elephant knowing that one of his teeth is doubled with digging at the rootes of trees to get meate, keepeth the other sharpe, and touches nothing with it, preserving it for his

his combate with the Rhinocerot his enemy ; but the craft of the Rhinocerot is very remarkable, that being in continuall enmity with the Elephant, at the time



The craft of
the Rhinocerot
about to fight
with the Ele-
phant;

when hee prepares for the battell, he whets his horne against a rocke, as if it were with a whetstone; nor (if he can chuse) will he strike any other part of the Elephant but the belly, because he knowes that part of the Elephant is so tender, that it may be easily pierced. This beast is in length equall to the Elephant, but in height hee is inferior unto him, by reason of the shortnesse of his feete; he is of a palish yellow colour, and full of many spots.

*Of the Lion, the Ichneumon, and those other beasts
which are not easily terrified.*

The provi-
dence of the
Lion in his
going.

THE Lion when hee goes, hath his clawes alwayes clutched, and as it were put up in their sheathes, not onely because hee would leave no marke of his feete, whereby hee may bee traced and so taken, but because by continuall walking, hee should weare off, and blunt the points of his clawes. Bulls when they fight charge one another with their hornes, and like valiant souldiers, provoke, and animate one another to the battell.

The greatest
are terrified
by the least.

The Ichneumon seemes to imitate the most valiant souldier in his preparation, and accesse to battell, for hee bedawbes himselfe with mudde, and doth as it were buckle and make tite his armour; especially when hee is to encounter with the Crocodile; who although hee be a vaste beast, is put to flight by this little creature. And this truly hath beene observed to bee by the singular providence of nature, that the most vaste creatures are terrified by the least things, and such from whence there can arise no danger; so they say the Elephant doth startle at the grunting of an hogge, and the Lion, at the crowing of a Cocke; although it be reported of the Lion that no feare can make him turne his face. These kinde of feares, terrors, and affrightments, arising upon light, and most ridiculous occasions, wee finde as well in the ancient as moderne Histories of our times, to have disperfed and put to flight mightie legions of souldiers, and most potent armies.

Of Cocks.

Cocks are
Kingly and
martiall birds.

COCKES are kingly birds, and therefore nature hath adorned them with a combe, as with a princely Diadem, and wheresoever they come, their magnanimity and courage makes them Kings. They fight with their beakes and their spurres; and with their martiall voice they fright the Lion who is otherwise the King of beasts.

Of Conies.

Conies have
taught us una-
dermining.

CONIES have taught us the Art of undermining the earth, whereby the most clostie Cities, and structures reaching the very skies, are by taking away their foundation levelled with the ground.

Marcus Varro writes, that in Spaine there was a towne, and that no meane one, which standing on a sandy ground was so undermined by a company of Conies, that all the houses tumbling and falling downe to the ground, the inhabitants were faine to depart and seeke new dwellings.

Of Wolfes.

The deceies
and ambushes
of Wolfes.

MEN have learnt the arts of waging warre from the Woulfes, for they come out by troupes, and lie in ambush neere the townes which they have appointed, and then one of them runnes unto the towne and provokes the dogges. And making as if hee runne away incites the dogges to follow him, untill he hath gotten them unto the place where their ambush lieth, which on a sodaine appeareth, and rusheth out upon them. And so they kill and eate all, or as many of the dogges as they are able to catch.

of

Of the Fox.

IN subtilty and craft the Fox exceedeth all other beasts; when in the chase the Doggs are at his heeles, he berayes and bepiffes his taile, and swings it in the face and eyes of the Dogges that follow him, and so blinding them, in the meane time gets ground of them. To fetch the Hens downe from their pearch he hath this devile, hee shakes and swings his taile upwards and downewards, as if hee meant to throw it at them; which they fearing tumble down, & he takes up one of them for his prey. His warinesse when he passeth over a River that is frozen is wonderfull, for he goes softly to the banck, and layes his eare to listen, if he can heare the noyse of the water running under the ice. For if he can, back he goes, and will not venter to passe over. The knowledge of which thing he could never meerely by his subtilty and craft attaine unto, but that of necessity hee must have some faculty of reasoning. ioyned with it, which by discourse and by proving one thing by another arrives at this Conclusion: Whatsoever is liquid and maketh a noyse is in motion, whatsoever liquid is in motion is not concrete and frozen, that which is not concrete and frozen is liquid, whatsoever is liquid will not beare a heavier body, whatsoever will not beare a heavier body, cannot with safety be adventured on; And therefore backe againe must I goe, and not passe over this River.

The craft of the Foxe.

The Foxe seemes to reason with himselfe.

His Sorites

Of Swine.

SWine, if in the woods, they heare any one of the same Heard with them crying out, they straight make a stand, and marshalling their forces haste all, as if they had beene warned by the sound of a martiall trumpet, to the assistance of their fellowes.

Of the fishes Scarus and Anthia.

PLutarch reports of the *Scari*, that when one of them chanceth to swallow a hooke and be taken, the rest of the same kind come in to his reskue, and shearing the Line with their teeth set him at liberty. But the readines of the *Anthia* to the mutuall assistance of one another, is yet more manifest, for by casting the Line upon which the hooke hangeth, on their backe, with the sharpnesse of their fins they cut it asunder, and so set free themselves and their captived fellowes.

The love of Fishes one to another.

Of the Pilot Fish.

THERE is great kindnesse betweene the *Pilot* Fish and the Whale. For although in bulke of body the Whale so farr exceed him, yet he leades the Whale and goes alwayes before him as his Pilot, to keepe him from running himselfe into any straight or muddy place, whence he might not easily get out. And therefore the Whale alwayes followes him, and very willingly suffers himselfe to be led by him, it being for his owne good. And in like manner he gets into the Whales mouth, and there lodging himselfe sleepes when he sleepes, and leaves him not either by day, or night.

The Whales pilot or guide.

Of Cranes.

CRANES when they are to take a long journey into some Countrey crosse the seas, put their company in so good order, that no Captaine can put his soldiers in better. For before they stir out of any place, they have as it were their trumpets to call them together, and encourage them to fly. They come together and then fly up on high, that they may see a far off, choosing a Captaine whom they are to follow. They have their Serjants to take care of their rankes, and keepe their nightly watches by turnes. Plutarch tells us that the Crane, which is appointed to stand

Cranes order themselves in rankes.

The sentinell Crane.

give

give way to nature and sleepe, she may be waked by the noise of the falling stone. The leader lifting up his head, and stretching out his long necke, lookes about him farre and wide, and gives warning to the rest, of any danger, that may befall them. The strongest leade the way, that they may the better with the flapping of their wings breake the force of the aire, and this they doe by turnes. And that they may the easilier prevaile against the force and opposition of the winds, they dispose their company into a wedge in the forme of the Greeke letter Δ or a triangle; and being skilfull in the starres they foresee when tempests are comming, and fly downe to the ground to keepe themselves from the injury of the approaching storme.

Of Geese.

The care of the Geese, that their gagling, doe them no harme,

THe Geese of Sicilie doe with great warinesse take care that by their ceeeking and their noyse, they doe not expose themselves to the rapacity of Birds of prey: (for *Plutarch* sayth) that when they are to fly over the hill Taurus, for feare of the Eagles that are there, they hold stones in their mouthes to keepe themselves from gagging, untill that they come unto a place where they may be secure.

Of Dragons.

The craft of Dragons fighting against the Elephant.

Lib. 8. cap. 11. and 12.

Neither are the Dragons lesse crafty; for thus doe they overcome those vaste and otherwise invincible beasts the *Elephants*. They lye in ambush and suddainly set upon the *Elephants* where they feare no such matter, and involve their leggs with the twines of their taile, in such sort, that they are not able to goe forward; and stop their nostrils with their heads so that they cannot fetch their breath, they pull out their eyes, and wheresoever they find the skin most tender, there they bite and sucke the blood untill they make them fall downe dead. *Pliny* sayth, that there are Dragons found in *Aethiopia* of ten Cubits long, but that in *India* there are Dragons of an 100. foot long, that fly so high, that they fetch Birds and take their prey even from the midst of the cloudes.

Of the Fish called, the Fisherman.

The craft of the Fisherman-fish in taking her prey.

THis Fish is called the Fisherman, because he hunts and takes other Fishes, which he doth almost by the same cunning which the *Cuttell* uses; for he hath hanging at his throat a certaine bagge like the Wattells of a Turkeycocke. This when hee listeth he casteth out, and layeth before the little fishes for a baite, and then by litle and litle drawes it up againe untill he catch for food the little fishes seazing upon it as a prey.

Of the Cuttell Fish.

The craft of the Cuttell to save her selfe.

Lib. 9. de Hist. animal. Cap. 37.

VVonderfull is the craft of the Cuttell Fishes, for they carry a bladder at their necke full of a blacke juice or Inke, which they poure forth as soone as they feele themselves taken; that so they may blinde the eyes of the Fishermen, as *Plutarch* saith; and as *Aristotle* witnesseth, they with their long fangs doe not onely hunt and take little Fishes, but oftentimes also Mulletts.

Of the Armes or weapons of brute beasts.

BRute beasts are naturally so furnished with armes, that they have no neede to get, make or borrow in any other place.

Cesius. Tom. 1. lib. 10. cap. 10.

And some of them neverthelesse are so furnished with such armes that they captivate those which hold them prisoners; an example of this is the *Torpedo*, which doth not onely hurt by touch, but also by the net being betweene, he breathes such a quality from him, as stupifies the hands of the Fishermen, so that they are forced to let goe their nets, and so let him goe; moreover if it touch a ship it makes it stay. *Theophrastus* writes, that the *Persian* bay towards *Arabia* nourishes a Fish equall in length and thickness

thicknesse to a Carpe, on every side encompassed with sharpe and strong pricks, like our Porcupine, with which hee fights against all kinds of fish. If a man chance but to be lightly hurt either with theie or his teeth, he will dye within 24.houres.

Of the fish Vtelif.

Hee saith moreover, that as he was carryed by force of tempest through the Atlanticke Ocean, he saw this fish having as it were a Saw in his forehead of three foot long, and foure fingers broad, armed on each side with sharpe spikes; They call it *Vtelif* in their Country speech.

Of the fish Caspilly.

There is another fish to be scene in the Arabian Gulfe, which the Arabians call *Caspilly*, its two foot long and as many broad, it hath a skin not much unlike a Dogfish, but armed with spikes, one whereof he carryes in his forehead a foot and halfe broad, in sharpenesse and force of cutting not much short of a graver or chissell: with this weapon when she is opprest with hunger she assailes the first fish shee meets, neither doth she give over before she carry her as a prey, *Tom. 1. lib. 5. cap. 2.* whither she please, as *Thevet* saith he hath scene.

Of Crabs.

Crabs and Lobsters though in the quantity of their body they be but small, yet they use their forked clawes before, not onely in feeding but also in defending themselves and assailing others.

Of the Docility of Beasts, and first of the Dog.

Beasts are apt to learne those things which men desire, whereby they shew themselves not wholly void of reason. For Dogges, Apes and Horses learne to creepe thorough the Iuglers hoopes, and rise on their hinder feet as though they would dance. *Plutarch* tells, that a Iugler had a Dog which would represent many things upon the stage besitting the occasion and argument of the play; amongst the rest, hee exceeded all admiration in that, that taking a soporifick medicine, hee excellently feigned himselfe dead; for first as taken with a giddinesse in his head he begun to tremble, then presently fell down, and lying on the ground, as it were contracted his dying members, and lastly as if truely dead he waxt stiffe; and moreover suffered himselfe diversly to be fitted according to divers parts of the Theater, the fable so requiring. But when he, by those things that were said and done, knew it was time to rise, he first begun to move his legs by litle and litle, as if hee had been wakened from a sound sleepe; then presently with his head a litle lifted up, hee looked this way and that way to the great admiration of all the beholders, and finally rise up and went familiarly and cheerfully to him he should; the which sight the Emperour *Vespasian* (who was then present in *Marcellus* his Theater) never saw any which more delighted him.

The wonderfull docility of Dogs.

A spectacle full of admiration and mirth

Of the Ape.

An Ape is a ridiculous Creature, and which makes men much sport, in imitating their actions. There hath beene seen an Ape which would pipe and sing, and besides dance and write, and endeavour to performe many other things proper to men. I remember I saw in the Duke of *Somes* house a great and curst Ape, who because he much troubled many, had his hands cut off, who suffering himself to be cured, when the wound was cicatrized, he grew more mild and docile. Wherefore cloathed in a greene coate, and girt over his loines with a girdle, he carried hanging therat a case of spectacles, a paire of knives & a childs handkercheife. He was committed to the charge of the Master Cooke to teach, because he had taken up his lodging in the Chimney corner, he

Gal. lib. 1. de usu partium.

hee was taught many pretty tricks and feates. If at any time hee swarved from his doctrine and precepts, in a trice the whip was upon his back & loines, and much was abated of his daily allowance, for as *Persius* saith, The belly is the master of Arts and sharpener of wit. By these means he profited so, in a short time, that he much exceeded all the Apes of his time in the glory of his wit; & there was none counted more skilfull in leaping and dancing to the pipe, running up a pole and nimbly leaping through his Masters legs. To conclude, he performed all the actions of a strong Ape, and very reverently carried up dishes with the waiters & servingmen, and made cleane the dishes and platters by licking, and did much other drudgery, so that he was commonly called Master *John Do-all*. At dinner and supper sitting in a chaire he said grace, and cast his eyes up towards heaven, and rouled them this way and that way, and smote his breast with the stumps of his hands with much lamentation, and imitated prayer by the gnashing, or beating together of his teeth. He would turne up his taile to any that offended him (for his coate scarce covered halfe his buttocks lest he should have filed it) he made much other pastime, alwayes going upright by reason of the cutting away of his hands, unlesse at any time through wearinesse he were forced to sit on his buttocks.

Of Ravenous birds.

The diligence of Faulconers in training up their Hawkes.

BVt let us take a veiwe of Faulconers teaching ravenous birds, how with swift wings carried aloft into the Aire, they may seaze upon other Birds and cast them downe dead to the [ground; in performance whereof, they often too freely soare up to the clouds so that they carry themselves out of the Faulconers sight, with a desire to sun themselves, neglecting in the meane time their designed prey.

The fight of the Herne and Falcon.

The *Herne* when she sees her selfe kept under and below the *Falcon* carried up by his strong wings with a mervellous swiftnesse, with her beake, which is long & sharpe, hid under her wings and turned upwards, she receives the *Falcon* blinded with the heat of fight and desire of prey, carelesly flying downe and rushing upon him; so that he often strikes him through the gorge, so that oft times they both fall downe dead to the ground. But if the *Falcon* without harme escape the deceits by Arte & the happy turning of his body, and the *Herne* be not cast downe, the Faulconer calling her backe with never so loud a voyce, yet by setting up her Feathers she dares her to the pretended fight.

Of the Camels.

Camel both tame and wilde.

The easie and not chargeable keeping of Camels.

Camels know when they have a sufficient load.

Camels both to carry burdens and to ride upon.

THe *Camell* is a very domesticall and gentle beast, and which is easily tamed and taught all kind of obedience and service; although some of them are cruell wilde and troublesome by biting and striking such as they meet, no lesse than vntamed horses. There is no neede to house them in the night, for they may be left in the plaine fields in the open and free aire, feeding upon the grasse and trees and cropping the tops of the thistles, neither in the morning doe they any whit the worse under-goe or carry their burdens. They are not put to carry burdens before they be foure yeare old. The Arabians geld them young, that they may enjoy their labour the longer, neither being gelt doe they rage for love or desire of venery. At the putting in of the Spring they endure hunger and thirst for eight dayes; they are so durifull, that at the becke of the Turkish slaves, or but touched on the necke with a twigge, they presently kneele on the ground to take up their burden, neither doe they lift themselves up before that they finde they have a sufficient load layd upon them. Those which have but one bunch on their backe are of Africke; but such as have two bunches are of Asia, or Scythia. Those kinde of *Camels* that are the bigger are used to carry packes, but the lesser are used to ride upon, as our horses are. They love nothing so well as beanes, and yet they live content with foure handfulls of beanes for a day. The greatest wealth of the Arabians consists in *Camels*, and so they estimate their riches, not by the quantity of silver, or gold, but by the number of *Camels*. The Turkish Emperour (*Thevet* being the reporter) made a Captaine over the herds of his *Camels*, giving him a great troope, of African and Christian slaves, that they might be the better looked unto. I have heard it reported (saith *Thevet*) by certaine Arabian, African and Iewish Merchants who were present, at that time when *Sultan Selim* the first of that name, beseiged

beseiged Caire in Egypt (which in former times was called *Memphis*) that there

Mighty troop
of Camels.



was then in that Emperours army sixtie thousand Cammels, besides a mighty company of Mules.

That Birds have taught us muscall tunes.

To sing like a
Nightingale

THe Nightingales are sweet and excellent fingers, tuning rheir notes with infinite quaverings, and diversities of sounds, so pretily and sweetly, that humane industry can scarce equall the sweetnesse thereof, by so many muscall instruments; so that wee say hee sings like a Nightingale, who varies his voice with much varietie. In which thing Birds much excell men, because they have that admirall sweetnesse of singing from nature it selfe without any labour of learning; which men can scarce attaine to in any schoole of musicke, by having their eares a thousand times pluckt by the hand of a curst master.

That Beasts know one anothers voice.

The voice to
beasts is of the
same use, as
speech is to
men,

We are as ill
as deafe, when
we heare an
unknowne
language.

Beasts know one another by their voice, so that they may seeme to talke and to laugh together, whilest flattering with their eares, they plucke in their noses, with a pleasant aspect of their eyes; and as speech is given to men, so Birds have their naturall voice which is of the same use to them, as speech is to us. For all birds of the same species, as men of the same countrey, chant and chirpe to one another, when men understand not the speech of other men, unlesse of the same nation. Wherefore the Scythian tongue is no more profitable to one living in Egypt, than if hee were dumbe; nor the Egyptians understand it no more than if they were deafe: Wherefore an Egyptian is dumbe and deafe to a Scythian. This those which travell well understand how many dangers, how many troubles they undergoe, because they cannot expresse their mindes, and require things necessary for life. Wherefore to the assistance of this unprofitable tongue, we are compelled to call the rest of the members, and to abuse the gestures of the head, eyes, hands, and feete. Truly the condition of brute beasts is not so miserable, seeing that all of the same kinde where-soever they bee, may answer each other with a knowne voice. Truly if any should heare a Germane, Briton, Spaniard, Englishman, Polonian, and Greeke, speaking amongst themselves in their native tongues, not understanding any of them, he could scarce discern, and certainly judge, whether hee heard the voice of men or of beasts.

That Birds may counterfeit Mans voice.

Parrots are
wonderfull
imitators of
mans voice.

A talking Pie,

Lib. 2. Saturn.
cap. 4.

Inets, Larkes, Pies, Rookes, Dawes, Crowes, Stares, and other such like Birds, speake, sing, whistle, and imitate the voices of men, and other creatures. In this Parrots excell all other, being wondrous skilfull imitators of mens voices, and very merry, but specially when they have drunke a little wine.

Plutarke reports that there was a Barber at Rome, who kept a Pie in his shop, which spoke exceeding well, and that of her owne accord, none teaching her, when she first heard men talking together; shee imitated the voice or crye of all beasts shee heard, as also the sound of Drums, and the noise of Pipes, and Trumpets; to conclude, there was nothing which shee did not endeavour to imitate. There have beene Crowes that have spoken and articulately sung songs, and Psalmes, and that of some length. To which purpose the Historie of *Macrobius* is notable; for hee tels that there was one amongst those, who went forth for lucke sake to meete with *Augustus Caesar*, returning from the warre against *Antonius*, who carried a Crow, which hee had taught plainely to pronounce this salutation; *Salve Caesar Imperator augustissime*, that is, *God save thee, O most sacred Emperor Caesar*. *Caesar* taken with the noveltie of this spectacle, bought this obsequious Bird with a thousand pceces of silver. *Pliny* and *Valerius* have reckoned up amongst prodigies, Oxen and Asses that have spoken. I omit infinite other things recorded by the ancients, *Plato*, *Aristotle*, *Pliny*, *Plutarch*, and other Philosophers of great credite, of the docilitie of beasts, and their

admirable

admirable felicity of understanding. Which things, if untrue, these learned men would never have recorded in writing, lest so they might brand with vanity, (then which nothing is more base,) the rest of their writings to posterity in all ensuing ages.

*Of the Sympathy and Antipathy of Living creatures
amongst themselves.*

HAVING briefly described the understanding of brute beasts, it seemes not impertinent to set downe some things more worthy of knowledge, happening unto them by reason of Sympathy and antipathy; that is, mutuall agreement and disagreement, which happens not onely to them living, but also dead; by a certaine secret and hidden propertie, through occasion whereof some desire, other shun, and others prosequute one another even to death. In testimony whereof; The Lyon the king of beasts excelling all other in courage and magnanimitie, feares the Cocke, for he is not onely terrified by his presence, but also by his crowing being absent. So an Elephant feares a Hogge; but hee is so affraid of Mice and Ratts, that he will not touch the meat that is given him, if hee smell that it hath beene desired with such creatures. There is deadly hatred betweene the Elephant and Rhinocerot; yet when the Elephant is furious and angry, hee becoms quiet and calme at the sight of a Ram. A horse is so afraid of a Camel, that he cannot endure his sight. The Dog hates the Wolfe, the Hart flyes the Dogge. The Snake flyes from and feares a naked man, and followes him being clothed. There is deadly hatred between the Aspis and Ichneumon, for he when he hath rowled himselfe in the clay, dryes himselfe in the Sunne, and so being covered over (by doing thus diverse times) as it were with shells, or armour, he enters into Combat, stretching out his taile and presenting his backe, untill he get opportunity to choake his adversary, by leaping and fastening on her jawes, by which stratageme he also kills the Crocodile. The green Lizard is a capitall enemy to the Serpent, but most friendly to man, as *Erasmus* witnesseth by many historyes concerning that matter, in his dialogue of Sympathy and Antipathy. There is a great deale of hatred betweene a man and a Wolfe, which is most manifest by this, that if the Wolues first see a man, his voyce is taken away, and his intended cry hindered. If the Weasell intend to set upon the Aspis that most venomous Serpent, shee armes her selfe by eating Rue, as a most certaine Antidote. The Ape feares the Torpedo, as *Erasmus* manifests by a pleasant history in the forementioned Dialogue; where also he pretily shewes the deadly hatred betweene the Serpent called Areas and the Toad. The like hate is between the Owle and Crowes, so that the Owle dares not go out, fly abroad, or seeke her food unlesse by night. The water or River fowle are afraid of the Falcon; that if they but heare her bells, they had rather be killd with staves and stones, than take wing to fly into the aire. So the Larke yeelds her selfe to be taken by a man, least she fall into the talents of the Hobby. The Castrill, or Merlin is naturally a terrour to Haukes, so that they both shun his voyce and presence.

The Lion
feares a cocke.

A horse feares
a Camel.

Water fowle
feare the Falcon.

The enmity
betweene the
Kites and
Crowes.

The discord
betweene the
Lambe and
Wolfe is not
ended by deal.

The Kites are all at perpetuall enmity with the Crowes, wherefore the Crow alwayes gets away the Kites provision. All kind of Pullen feare the Foxe. The Chicken feares neither a Horse, nor an Elephant, but scarce hatched, it presently runs away at the voyce or sight of a Kite, and hides it selfe under the hens wings. The Lambe and Kid flye from the Wolfe when they first see him, nether doth death give an end to that hatred, but it superviues their funerall. An Experiment whereof (they say) is, that if one drum be headed with Wolves skinnies and another with Sheepes, and beaten up together, you shall scarce heare the sound of the Drum covered with sheepes skins. And besides, if you string one Harpe with strings made of sheepes gutts, and another with strings of Wolves gutts, you cannot bring it to passe, by any Arte, to make them agree and goe in one tune. It is reported from the experiments of many men, that if a Wolves head be hanged up on high in the place where Sheepe are, that they will not touch the grasse how good and fresh soever it be, nor rest quiet in any place, but tumultuously runne up and downe, untill all such kinde of terrour be taken away; The hate

H

betwixt

How to make
cheese that
Mice will not
gnaw.

betwixt Mice and Weasells appears by this, that if you mixe never so little of the braines of a Weasell in the rennet, with which you crudle you Cheese, the Mice will never gnaw or touch that cheese. The Linnet doth so hate the bird *Florus*, that both their bloods put into one vessell cannot be mixed together. A Wolves head hung up in a dovehouse, drives away Poll-Cats and Weasells. The Panther and Hyæna burne with so great hatred, that if both their skins be laid one against the other, the Panthers will shed the haire, the haire of the Hyæna remaining entire and not moved; which thing, they say, happens to the feathers of other birds if any one chance to tye them up in a bundle with the Eagles. Let these suffice for some few examples of many, of the Antipathy amongst beasts. But of the Sympathy, and consent of beasts amongst themselves, I thinke needlesse to write any thing, being it is sufficiently knowne to all, that one lay associates another, and the cruell Beares agree amongst themselves; and beasts of the same species doe wonderfully consent one with another.

That Man excels all beasts.

Man beares
Gods image:

INOW thinke it fit to assay to write of that excellency of man over beasts, which I have so long intended. Neither would I that Epicures and other too much naturall and materiate Philosophers, so take those things I have written of the endowments of beasts, as though we should thinke, there were no difference betweene man and beast. I had no such meaning, no such intention; but onely that man should not become too stately, or too ingrate in lesse acknowledging God to be the Author of so many benefits with which he abounds. For whatsoever we have largely spoken of beasts, yet there is no comparison betweene beasts and man, for there is too great a difference betweene them. For mans minde is adorned with religion, justice, prudence, magnanimitie, faith, piety, modesty, clemency, fortitude and other vertues as lights, which shine much more bright in man than in beasts. For they are sometimes all in some one man, each whereof are thought great in beasts. For seeing that man is made to the Image of God, it cannot be, how much soever he defile himselfe with the pollution of vices, that he can so obscure that inbred light, but that alwayes some beame of the divine wisdom will be inherent and shine in him. But although by collation to some beasts, hee may seeme a defective and weake Creature; yet no fortitude nor strength of beasts can be so great as to equall the fortitude of man. For God hath engraven in man the character of his divine virtue, by the assistance whereof, he might have all beasts under and obedient to him. And though by that we have formerly said, beasts may seeme to have a certaine shadow of reason, yet that small light is not fit for many and diverse uses, but there is onely given them so much providence, as should be sufficient for them and the preservation of their bodyes. But men have reason given them to crop or gather the fruits of eternall life, (as *Lactantius* saith) whereby it comes to passe, that man onely, amongst so many creatures, hath sense and understanding of divine things. Which *Cicero* thought to be knowne by that, because man onely had a certaine knowledge of God in his mind. Wherefore he was enriched by God with reason, speech and hands as helps for the performance of all his actions; moreover by his singular and almost divine wit he easily excels all brute beasts. For first, reason being his guide, he invented things necessary for life, fitly imposed names on the things invented besitting their natures, framed letters and Characters, invented all liberall Arts and handy-crafts, and found meanes to measure the Land and Sea. Hee hath observed and drawne into an Art the spaces of the Celestiall Globe, the distinctions of the Starres, the changes and orders of dayes and nights, of times and seasons, the risings and settings of Starres, and their power and effects over these lower bodyes. Lastly, he records in writing to perpetuall memory that which concernes his owne nature, or the nature of other things, the precepts and ordinances of life and manners, by which singular gift, we can now conferre with *Socrates*, *Plato*, *Aristotle*, and other Philosophers of ancient times, as if they were living.

Man hath gi-
ven names to
things.

What

*what benefit man hath by reason of his native
nakednesse and ignorance.*

BVt as Mans body is by nature naked and unarmed, so is his minde like a smooth table in which nothing is painted, nothing graven; but for helpe of his nakednesse he hath hands, and for supply of his ignorance, reason and speech. And by these three being as it were the ministers of infinite varietie of things, he clothes and defends his body with all things needful: & enriches his minde with the knowledge of Arts & sciences. Now if he had certaine weapons borne with him, he should use them only; if he should be borne skilfull in any Arte, he would meddle with none else. Therefore because it was more expedient to use all sorts of weapons with the hand, and be skilfull in all Arts; therefore he must be borne wanting and ignorant of all. *Aristotle* very wittily called the hand the instrument of instruments: in imitation of which speech, one may rightly affirme, That Reason is the Arte of Arts: for as the hand in worth exceeds the other instruments, because it can make, handle and fit them for use; so reason and speech, though names of no Arte, yet comprehend and encrease all Arts. Therefore man seeing he hath his minde instructed by Arte, that is, by reason; it is fit he should have his body defended with a weapon, or instrument, that is, the hand, which in agility and excellency should excell all other instruments. For so Man hath his hands instead of all weapons, which he may use in warre and peace as the instruments of all Arts; he wants not the Bulls horns, the Boares tuskes, the horses hooves, nor to conclude, any armes of any other beast. For by the benefit of his hands he can handle other armes farre more profitable and safe, as a Lance, Sword, Speare, halberd; but man also can use at some distance the bow, sling and handgun, when the horne and the hoofe cannot be used but neer at hand. But some may say; A Lion exceeds a man in swiftness of foot; what then? is man therefore inferiour to him? no for by the meanes of his hands and the guidance of his reason he bridling and riding upon a horse, out runs the Lyon, and being victor followes him to and againe as he himselfe pleases, or vanquished flies away, and from the horses backe as from a tower wounds the Lyon with what weapons he pleases. To conclude, man is abundantly provided with meanes, to defend himselfe from the violence of all other beasts. For this purpose he doth not onely harness himselfe as with brasen walles, but also makes ditches and Bulwarkes; he makes by the ministry of his hands all kind of weapons, weaves himselfe garments, casts into the water and drawes forth nets to catch fish; and to conclude, he performs all things to his owne contentment, and having that priuiledge granted him by God, he rules over all the earth; all things which lye hid in the bowells of the earth, which goe, or creepe upon the earth, which swim in the sea, and fly through the aire, or are any where shut up in the compasse of the skie, are in mans dominion.

*Gal. cap. 4. lib.
I. de usu partium*

*As the hand is
the instrument
of instruments
so Reason is
the Arte of
Arts.*

*Man under
God is the
King and Em-
perour of the
World.*

How wonderfull God hath shewed himselfe in making man.

Gods Deity and providence hath principally shewed it self in the creation of man; neither his so admired light hath so shone in the production of other creatures, seeing that God would have them to live and have their being, onely for mans sake, that they might serve him. Therefore man is, if we diligently consider all his endowments, a certaine patterne and rule of the divine majesty & (if I may so say) Artifice. For being made to Gods image, he is as it were his coine, exceeding the capacity of all humane understanding. Which seemed a just reason to the ancient Philosophers, that he should be called *Microcosmos*, or a litle world, because the particles of all things contained in the compasse of heaven and earth, are contained in his minde and body, that in the meane time I may in silence passe over his soule more great and noble than the whole world.

*Man is the end
of all mundane
things.*

*Man a litle
world, yea al-
most a great
world.*

Why Nature hath not given Man the facultie of persaging.

Man is not
obnoxious to
the Aire and
stars,

One man will
counterfeit
the voyces of
infinite varie-
ties of beasts,

The power of
Musicks.

THIS seemes the reason, that men by the instinct of nature doe not foresee the future seasons and dispositions of the heaven and aire; because, seeing they have received certaine sparks of prudence from God, by whose care and guidance they are led to the knowledge of things by no deceitfull but certaine judgment, being not obnoxious to the conditions and changes of times and seasons, as beasts are. Wherefore knowing all these airy changes to be placed under them, that is to say their minds, according as occasion serves, and their minds desire, they give themselves to mirth when the Aire is wet, stormy and darke, and on the contrary in a cleare and faire season to a sincere and grave meditation of things sublime & full of doubt. But beasts accommodating themselves to that disposition of the aire which is present & at hand, are lively, or sad, not from any judgment as men, but according to the temper and complexion of their bodies following the inclinations of the aire, and of the humors one while diffused, another while contracted. Neither ought we to blame man, because he can imitate the voyce of beasts, but rather much commend him, that he can infinitely wrest and vary one thing, that is his voyce; for men can barke like Foxes and doggs, grunt like hogs; whet and grinde their teeth like boares; roare like Lyons; bellow like Bulls; neigh like horses; knacke their teeth like Apes; howle like Wolues; bray like Asses; bleate like Goats and Sheepe; mourne like Beares, Pigeons and Turtles; Keeke and gaggle like geese; hisse like Serpents; cry like Storkes, caw like a Crow, and crow like a Cocke, clocke like Hennes; chatter as Swallowes and Pyes; sing like Nightingales; croake like Frogs; imitate the singing of Wasps and Humming of Bees; Mew like Catts. The singing of Birds scarce seemes to merit the name of Muscicall, compared to the harmony of men fitted and tuned with infinite variety of voyces. For with this they possesse the eares of Kings and Princes; provoke and temper their wrath and carry mens minds beyond themselves, and transforme them into what habits they please. But if those cruell beasts have any humanitie, they owe it all to man. For he tames Lyons, Elephants, Beares, Tigers, Leopards, Panthers and such other like.

Of the Crocodile.

A tame Cro-
codile.

Plutarch reports of the *Crocodile* (whose figure is here delineated) that being tamed, and taught by man, hee doth not onely heare mans voyce, and answeres to his call, but suffers himselfe to be handled, and opening his throate, lets his teeth be scratched and wiped with a towell. How small a part of Physicke is that, which beasts are taught by nature? Certainly nothing in comparison of man, who by the study and practise of a few yeares can learne at his fingers endes all the parts of Physicke: and practise them not onely for his owne, but also for the common good of all men. But why cannot beasts attaine unto the knowledge of Physicke so well as men? I thinke, because so great an Arte as Physicke is, cannot be attained unto by the dull capacities of Beasts.

In what sense
we said Ele-
phants had
religion.

But for that I have written of the Religion of Elephants, if I must speake according to the truth of the matter, wee cannot say they worship God, or have any sense of the divine Majesty. For how can they have any knowledge of subliming things or of God, seeing they wholly following their foode, know not how to meditate on celestiall things? Now for that they behold and turne themselves to the Moone by night, and to the Sunne in the morning, they doe not that as worshipping, or for that they conceive any excellency or divinitie in the Sunne; but because nature so requiring and leading them, they feele their bodies to rejoyce in that light, and their entralls and humors to move and stirre them

them to it. Therefore when we attributed religion to Elephants, we said it rather popularly, than truly, and more that we might exhort men to the worship of God,



than that we thought Elephants had any knowledge of divine worship implanted in their mindes.

*That man may attaine unto the knowledge of all voyces
and tongues.*

THe docility of mans wit is so great, and the facility of the body obeying that divine gift of wit such, that he is not onely able to learne to understand and speak the

Man not on-
ly the imitator,
but the inter-
preter of the
voices of beasts
and birds.

the tongues of diverse nations differing in so many peculiar languages; and not only to imitate and counterfeit the voyces of all beasts though so much different from man, which many flattering and juggling companions, followers of other mens tables, will doe; but also may be able to know and understand both what they pretend and signifie. In confirmation of which thing they cite the Philosopher *Apollonius* most famous in this kind of study and knowledge. He walking on a time amongst a company of his friends thorough the field, and seeing a Sparrow come flying and chirping much to diverse other Sparrowes sitting upon a tree, is reported, to have said to those which were with him: That bird, which came flying hither, told the other in her language; that an Asse laided with corne was fallen downe at the City gate, and had shed the wheat upon the ground. Wherefore *Apollonius* and all his friends which were with him went thither to see whether it were so, and found that it was so, as he had told them, and observed that the Sparrowes moved thereto by the comming of the other, were eating up the graines of Corne shed on the ground.

The unquench-
able desire
of learning in
man.

But for Crowes and Pyes artificially taught to counterfeit mens voyces, it is too small a thing, that for that cause they should contend with men. For they have quickly babled all they have learnt with longer cost and labour, tediously singing still the same song, and whatsoever they prate they doe it without sense, understanding or any reason for what they say. But man alwaies contemplating somewhat more high, still thinks of greater things than these present, and never rests. But burning with an infinite and endlesse desire of knowledge, hee doth not onely covet to know these things which appertaine to food and clothing, but by casting up his eyes towards heaven, and by the light of his minde, he learns and understands things divine. Which is so certaine an argument of the celestially originall of our soule, that hee which considers these things can no wayes doubt, but that we have our minds seasoned, by the universall divine understanding. But now it is time for us to set upon the description of the body, the habitation and fit instrument of all the functions of that divine minde.

The end of the second Booke.

THE



THE THIRD BOOKE TREATING OF THE Anatomy of Mans body.



Following custome and the manner of such as before me have written of Anatomy, will first, (that I may make the mindes of the Readers more attentive and desirous of these studies) declare how necessary it is, and also how profitable, and then shew the order to bee observed in it, before I come to the particular description of mans body.

Furthermore, how Anatomy may bee defined, and the manner of the definition of the parts. For the first, the knowledge of Anatomy seemes in my judgement very necessary

*The necessity
of the know-
ledge of Ana-
tomy.*

to those that desire to excell, or attaine to perfection of Physicke; that is, whereby they may be able to preserve the present health of the body, and the parts thereof, and drive away diseases. For how can either Physicion or Chirurgion preserve health by the use of the like things, which consists in the temperament, conformation, and naturall union of the parts; or expell the disease which hurts those three, by the like use of their contraries, unlesse he shall know the nature and composure of the body, and understand as by the rule of this knowledge, how much it swerves from the nature thereof? Wherefore it is excellently said of *Hippocrates*; that the Physicion called to cure the sicke Patient, ought diligently to consider, whether those things that are in him, or appeare to be in him, be like or unlike, that is, whether the Patient be like himselfe and his owne nature in all his parts and functions, temperature, composure and union; that hee may preserve those which are yet contained in the bounds of nature, and restore those that are gone astray. Which thing *Galen* hath also confirmed, specially where hee saith; hee must well know the nature and structure or composure of the bones, who takes upon him to restore them broken or dislocated to themselves and their proper seates or places. Moreover seeing that healing doth not onely consist in the knowledge of the disease, but as well in prescribing fit medicines and like application of them to the body and the parts thereof, all which by their naturall dissimilitude, doe require unlike medicines, according to *Galen*'s opinion: I prethe tell mee, who can performe this, which is ignorant of the description of the whole and the parts thereof, taught by Anatomie? We may say the like of the Apothecarie, who ignorant of the scituation of the parts in the body, cannot apply Emplaisters, Ointments, Cataplasmes, Fomentations, Epithemes, bagges to the fit places, as to the sutures of the skull, to the Heart, Liver,

*Initio lib. de
Offic. medici.*

Lib. de osibus.

*I. de loc. affe-
ctu, & lib. 3.
Meth.*

Stomacke,

Why when
the liver is hot,
the stomacke
is commonly
cold.

Stomacke, Spleene, Reines, Wombe or Bladder. For example, let us imagine the Liver to be troubled with a hot distemperature, but on the contrary the stomacke with a cold (which commonly happens, seeing the Liver hotter than it ought to be, sends up many vapours to the head; from whence cold humors fall into the stomacke) if hot things to be applied to the stomacke by the Physitions prescription, be by the Apothecarie making no difference, applied both to the stomacke and neighbouring Liver (which may chance if hee be ignorant that the stomacke bends somewhat to the left side under the breast-blade; but the liver so takes up the right side of the body that with a great part thereof, it covers almost all the stomacke) will not be much offend by encreasing the hot distemper of the liver, and not thereby giving ease, or helpe to the disease? Shall not by this his ignorance, the Patient be frustrated of his desire, the Physition of his intent, and the medicine of its effect? By these examples I thinke it most manifest, that the Anatomieall knowledge of the parts of the body is exceeding necessary to all Physitions, Chirurgions, and Apothecaries, who will practise Physicke with any praise to the glory of God, and the benefit and good of man, for whose sake wee have writ these things, and illustrated them by figures, subjecting the parts to the eye, and fitly put them in their proper places,

The know-
ledge of Ana-
tomy, is com-
modious four
manner of
wayes.

But Anatomy is commodious foure manner of wayes; the first is, because thus we are led to the knowledge of God the Creator, as by the effect to the cause; for as we reade in Saint Paul, The invisible things of God are made manifest by the visible. The second is, That by meanes hereof wee know the nature of mans body, and the parts thereof, whereby wee may more easily and certainly judge and determine of sicknesse and health. The third is, that by the knowledge of the body and its parts, and together therewith its affections and diseases, wee may prognosticate what is to come, and foretell the events of diseases. Lastly, the fourth is, that considering the nature of the diseased part, we may fitly prescribe medicines, and apply them in their due places.

There is a
threefold
method.

Now we must declare in what order Anatomie may be fitly delivered; but first we must observe there is a threefold Methode; The first is called of Composition, being very commodious for the teaching of Arts, which Aristotle hath used in his Workes of Logicke, and naturall Philosophy, the order and beginning taken from the least and most simple to the more compound. The second of Division, fit for the inventing or finding out of sciences. Galen hath followed this order in his Bookes of Anatomieall Administrations, and of the use of the parts. The third of Definition, which sheweth the nature and essence of things, as appears by Galen in his Booke *De Arte parva*. And because this order doth also prosecute the divisions, therefore it is commonly accustomed to be comprehended in the compasse of the second. Therefore I will follow this in my Anatomieall Treatise, deviding mans body into its parts, which I will not onely subiect to the eye in the way of knowing them, but also to the minde in the faithfull understanding them. For I will adjoyne those things that are delivered of them by Galen in his Booke of Anatom. Administrations, with those which hee hath taught in his Bookes of the use of the parts. For there hee fitly laies the parts of mans body before our eyes, to the sense. But here he teaches to know them, not to see them; for hee shewes why, and for what use they are made. Having briefly handled these things, wee must declare what Anatomy is; that as Cicero saith out of Platoes *Phaedro*, it may be understood of what we dispute. And because we attaine that by definition (which is a short and plaine speech, consisting of the Genus and difference of the things defined, being the essentiall parts, by which the nature and essence of the thing, is briefly and plainly explained) first we define Anatomy, then presently explaine the particular parts of the definition.

The Authors
intent.

What Anato-
my is.

How a defi-
nition differs
from a des-
cription.

Wherefore Anatomy, (if you have regard to the name) is a perfect and absolute division, or artificiall resolution of mans body into its parts, as well generall as particular, as well compound as simple. Neither may this definition seeme illegitimate, specially amongst Physitions and Chirurgions. For seeing they are Artizans humiliated to the sense, they may use the proper and common qualities of things for their essentiall differences and formes. As on the contrary, Philosophers may refuse all definitions as spurious, which consist not of the next Genus and the most proper, and essentiall

essentiall differences. But seeing that, through the imbecilitie of our understanding, such differences are unknowne to us, in their places we are compelled in defining things, to draw into one many common and proper accidents, to finish that definition which we intend, which for that cause we may more truly call a description, because for the matter and essentiall forme of the thing, it presents us onely the matter adorned with certaine accidents. This appeares by the former definition, in which *Division* and *Resolution* stand for the *Genus*, because they may be parted into divers others, as it were into *species*. That which is added over and besides, stands in place of the difference, because they separate and make different the thing it selfe from all other rash and unartificiall dissections. We must know an artificiall division, is no other than a separation of one part from another, without the hurt of the other, observing the proper circumscription of each of them; which if they perish or be defaced by the division, it cannot be said to be artificiall; and thus much may suffice for the parts of the definition in generall.

For as much as belongs to the explication of each word; we said of *Mans body*, because, as much as lies in us, we take care of, preserve the health, and depell the diseases thereof, by which it may appeare that mans body is the subject of Physicke, not as it is mans, or consists of matter and forme, but as it is partaker of health and sicknesse. The Subject of Physicke.

Wee understand nothing else by a part, according to *Galen*, than some certaine body, which is not wholly disioyned, nor wholly united with other bodies of their kindes; but so that, according to his opinion, the whole being composed therewith, with which in some sort it is united, and in some kinde separated from the same, by their proper circumscription. Furthermore by the *parts in generall*, I understand the head, breast, belly, and their adjuncts. By the particular parts of those, I understand, the simple parts, as the similar, which are nine in number, as a gristle, bone, ligament, membrane, tendon, nerve, veine, arterie, musculous flesh; some adde fibers, fat, marrow, the nailes and haire; other omit them as excrements; but wee must note that such parts are called simple, rather in the judgement of the sense, than of reason. For if any will more diligently consider the nature, they shall finde none absolutely simple, because they are nourished, have life and sense, either manifest or obscure, which happens not without a nerve, veine, and artery. Gal lib. 1. de usu part. lib. 1. Meth.

But if any shall object, that no nerve is communicated to any bone, except the teeth; I will answer, that neverthelesse the bones have sense by the nervous fibers, which are communicated to them by the *Periosteum*, as by whose mediation the *Periosteum* is connect to the bones, as we see it happens to these membranes, which involve the bowels. And the bones, by this benefit of the animall sense expell the noxious and excrementitious humors from themselves into the spaces betweene them and the *Periosteum*, which as indued with a more quick sense, admonisheth us, according to its office and dutie, of that danger which is ready to seaze upon the bones, unless it be prevented. Wherefore wee will conclude according to the truth of the thing, that there is no part in our body simple, but only some are so named and thought, according to the sense; although also otherwise some may be truly named simple, as according to the peculiar and proper flesh of each of their kindes. Those parts are called compound which are made or composed by the mediation, or immediately of these simple, which they terme otherwise organically or instrumentally; as an arme, legge, hand, foote, and others of this kinde. The similar parts are 9.

And here wee must observe, that the parts are called simple and similar, because they cannot be divided into any particles but of the same kinde; but the compound are called dissimilar from the quite contrary reason. They are called instrumentally and organically, because they can performe such actions of themselves, as serves for the preservation of themselves and the whole; as the eye of it selfe, without the assistance of any other part, seeth, and by this faculty defends the whole body, as also it selfe. Wherefore it is called an instrument or organ, but not any particle of it, as the coates, which cannot of it selfe performe that act. Whereby wee must understand, that in each instrumentally part we must diligently observe foure proper parts. One by which the action is properly performed, as the Crystalline humour in the eye, How the bones come to feele.

The compound, or organically parts.

Foure particles to be observed in each organically part.

eye; another without which the action cannot be performed, as the nerve & the other humors of the eye. The third, whereby the action is better and more conveniently done, as the tunics and muscles. The fourth, by which the action is preserved, as the eye-lids and circle of the eye. The same may be said of the hand, which is the proper instrument of holding, for it performs this action; first by the muscle, as the principall part; Secondly, by the ligament, as a part without which such action cannot be performed. Thirdly by the bones and nailes, because by the benefit of these parts, the action is more happily performed. Fourthly, by the veines, arteries and skin, for that by their benifite and use, the rest, and so consequently the action it selfe is preserved.

Four sorts
of instrument
call parts.

Nine things to
be considered
in each part.

Why the three
principall
parts are so
called.

*Lib. de Arte
medica.*

The use and
function of
the parts ser-
ving for gene-
ration.

But we must consider, that the instrumentall parts have a fourefold order. They as said to be of the first order, which are first and immediately composed of the simple, are onely the authors of some one action, of which kinde are the muscles and vessels. They are of the second which consist of these first simple, and others besides, as the fingers. They are counted of the third rancke, which are composed of parts of the second order and some besides, as the hand taken in generall. The fourth order is the most composed, as the whole body, the organ and instrument of the soule. But you must observe, that when we say the muscles and vessels are simple parts, we refer you to the sense and sight, and to the understanding, comparatively to the parts which are more compound; but if any consider their essence and constitution, he shall understand they are truly compound, as we said before. Now it remaines, that wee understand, that in each part, whether simple or compound, nine things are to be considered, as substance, quantitie or magnitude, figure, composition, number, connexion, (by which name, we also understand the originall and insertion) temperature, action, and use; that by the consideration of these things, every one may exercise the art of Physicke, in preserving health, curing diseases, or foreseeing their events and ends.

But also wee must note, that of the organicall parts, there be three, by whose power the body is governed; which for that cause they call regent and principall; because they governe all the rest; they are the liver, heart, and braine. But they are called principall, not onely because they are necessary for life (for the stomacke, winde-pipe, lungs, reines, bladder, and such like parts perhaps are equally as necessary for life) but because from each of these three, some force, power, and facultie, or also matter necessary for the whole body, flow over all the body, when no such thing proceeds from the rest of the parts. For from the liver a matter fit for nourishment, is distributed by the veines through all the body; from the heart the vitall force diffused by the arteries, imparts life to the whole body; from the braine by the nerves a power or facultie is carried through all the parts of the body, which gives them sense and motion.

Galen would have the Testicles to be of this kinde, not for the necessitie of the individuall, or peculiar body, but for the preservation of the *Species* or kind. And moreover in his book *de Semine* comparing the Testicles with the heart, he makes them the more noble by this reason, that by how much it is better to live well and happily, than simply and absolutely to live, by so much the testicles are more excellent than the heart, because with them wee may live well and pleasantly, but with this simply live, as we see by the example of Eunuches, and such as are gelt, by which the Testicles seeme rightly to be accounted amongst the principall parts; for nature seeing it desired, that this its worke should be immortall, for the attaining of that immortality which it intends, frames those parts, like as prudent founders of a Citie, who doe not onely procure to furnish their citie with many inhabitants, so long as they are in building it, but also that it may remaine in the same state and condition for ever, or at least for many ages. And yet notwithstanding of so many cities built in the first memory of man, there remaines none, whose fame and state, together with the builders name is not decayed and perished. But this humane worke of nature, stands yet secure for this many thousand of yeares, and shall endure hereafter, because it hath found a way, by which every one may substitute another in his place before he depart. Hence it is that all creatures have members fit for generation, and pleasures inserted

in those members, by which they might be inticed to mutuall embraces and copulations. But the mind, which hath dominion over those members, hath an incredible desire of propagating the issue, by which also brute beasts incited, desire to propagate their kinds for ever. For seeing that nature understands all these her workes considered particularly by themselves, are fraile and mortall, it hath done what it could to recompence that fatall necessitie of dying, by a perpetuall succession of individuals.

Hitherto we may seeme to have abundantly shewed what necessitie of knowledge in Anatomy belongs to all Artizans in Physicke, and also what order is to be observed in the same. And lastly, how it is defined, and the reason of the parts of the definition. Wherefore it remaines that wee prosecute what wee have taken in hand, which is, that wee shew and declare how to know all and every the parts of mans body, how many, and what they be, and to understand wherefore they be. For although the true knowledge of Anatomy may be perfected by the sight of the eye, and touching and handling each part with the hand, yet nevertheless the labour of describing Anatomy is not unprofitable. For by reading, such as have often exercised themselves in the dissecting of mens bodies may refresh and helpe their memories, and such as have not, may make plaine and easie the way to the understanding of dissections.

CHAP. I.

The Division or partition of Mans body.

REason the partition of mans body can hardly be understood, if the distinction of the proper faculties of the soule be not understood, for whose cause the body enjoyes that forme (which wee see) and devision into divers instruments; Therefore I thought good in few words to touch that distinction of the faculties of the soule, for the better understanding of the partition of the body which wee intend. Wherefore the soule, the perfection of the body, and beginning of all its functions, is commonly distinguished and that in the first and generall division, into three faculties, which are the Animall, vitall, and naturall. But the Animall is divided into the principall, sensitive, and motive; Again, the principall is distinguished into the imaginative, reasonable, and memorative. And the sensitive into Seeing, Hearing, Smelling, Tasting, and Touching. But the motive into progressive and apprehensive. And the vitall is divided into the dilative, and contractive facultie of the heart and arteries, which we know or understand by the pulsificke facultie. But the naturall is parted into the nutritive, auctive, and generative faculties; which three performe their parts by the helpe and ministrie of five other faculties, which are, the Attractive, Retentive, Concoctive, Assimulative, and Expulsive.

What the soule is, and with how many faculties it is endued.

After the selfesame manner, the organ or instrument of the soule, to wit, Mans body, at the first division is distinguished into three parts, which from their office they call Animall, vitall, and naturall. These againe, according to the subdivision of the subalternall faculties, are divided particularly into other parts; so that any one may know the organ of each facultie, by the propertie of the function. For while other Anatomists divide mans body into foure universall and chiefe parts, they distinguish from the three first, those which they call the Extremities; neither doe they reach to what rancke of the three prime parts each extremitie should be reduced. From whence many difficulties happen in reading the writings of Anatomists; for shunning whereof, we will prosecute, as wee have said, that distinction of mans body, which we have touched before.

All the parts of mans body are distinguished into three.

Wherefore, as wee said before, mans body is divided into three principall and generall parts, Animall, Vitall, and Naturall. By the Animall parts, wee understand not onely the parts pertaining to the head, which are bounded with the crowne of the head, the collar-bones, and the first *Vertebra* of the breast, but also the extremities,

What parts are here called Animall.

ties, because they are organs and instruments of the motive facultie; *Hippocrates* seems to have confirmed the same, where hee writes; Those who have a thicke and great head, have also great bones, nerves, and limbs. And in another place hee saith, those who have great heads, and when they stoope shew a long necke, such have all their parts large, but chiefly the animal. Not for that *Hippocrates* would therefore have the head the beginning and cause of the magnitude and greatnesse of the bones, and the rest of the members; but that he might shew the equallity, and private care or government of nature, being most just and exact in the fabricke of mans body, as if she hath well framed the head, it should not be unlike, that shee idly or carelesly neglected the other parts which are lesse seene. I thought good to dilate this passage, least any might abuse that authoritie of *Hippocrates*, and gather from thence, that not onely the bones, membranes, ligaments, gristles, and all the other animall parts, but also the veines and arteries depend on the head as the originall. But if any observe this our distinction of the parts of the body, he will understand wee have a farre other meaning.

What parts
are called vi-
tall.

The devision
of the animall
parts.

The devision
of the vitall
parts.

The devision
of the naturall
parts.

By the vitall parts, we understand onely the heart, arteries, lungs, winde-pipe, and other particles annexed to these. But by the naturall, wee would have all those parts understood which are contained in the whole compasse of the *Peritonaeum* or Rim of the body, and the proccesses of the *Erythroides*, the second coate of the Testicles. For as much as belongs to all the other parts, which we call containing; they must be reckoned in the number of the animall, which notwithstanding, we must thus devide into principall, sensitive, and motive; and againe, each of these in the manner following. For first the principall is devided into the imaginative, which is the first and upper part of the braine, with its two ventricles and other annexed particles; into the reasoning, which is a part of the braine, lying under the former, and as it were the toppe thereof with its third ventricle. Into the memorative, which is the *cerebellum* or afterbraine, with a ventricle hollowed in its substance. Secondly, the sensitive is parted into the visive, which is in the eyes; the auditive, in the eares; the smelling, in the nose; the tasting, in the tongue and palate; the tactive, or touching which is in the body, but most exquisite in the skinne which invests the palmes of the hands. Thirdly, the motive, is devided into the progressive, which intimates the legges, and the comprehensive, which intimates the hands. Lastly, into simply motive, which are three parts, called bellies, for the greatest part terminating and containing; for the vitall, the instrument of the faculty of the heart, and dilatation of the arteries, are the direct or streight fibers, but of the constrictive the transverse; but the three kinds of fibers together, of the pulsifick; or if you please you may devide them into parts serving for respiration, as are the lungs, and weazon, and parts serving for vitall motion, as are the heart and arteries, furnished with these fibers, which we formerly mentioned. The devision of the naturall parts remaines, which is into the nourishing, auctive and generative, which againe are distributed into attractive, universall, and particular; retentive, concoctive, distributive, assimilative, & expulsive. The attractive, as the gullet and upper orifice of the ventricle; the retentive, as the *Pylorus* or lower passage of the stomacke; the concoctive, as the body of the ventricle, or its inner coate; the distributive, as the three small guts; the expulsive, as the three great guts; we may say the same of the liver, for that drawes by the mesaraicke and gate veines, retaines by the narrow orifices of the veines dispersed through the substance thereof; it concocts by its proper flesh; distributes by the hollow veine, expels by the spleene, bladder of the gall and kidneies. We also see the parts in the testicles devided into as many functions; for they draw by the preparing vessels; retaine by the varicous crooked passages; in the same vessels they concoct the seed by the power of their proper substance and facultie; they distribute by the ejaculatorie, at the glandules called *Prostata*, and the hornes of the wombe, supplying the place of prostates; Lastly, they expell or cast forth by the prostates, hornes, and adjoyning parts. For as much as belongs to the particular attraction, retention, concoction, distribution, assimilation of each part, that depends of the particular temper, and as they terme it, occulte proper-tie of each similar and simple part. Neither doe these particular actions differ from the universall, but that the generall are performed by the assistance of the three sorts of

of fibers, but the speciall by the severall occult propertie of their flesh, arising from their temperature, which we may call a specificke propertie. Now in the composition of mans body, nature principally aimes at three things. The first is, to create parts necessary for life, as are the heart, braine, and liver. The second, to bring forth other for the better and more commodious living, as the eyes, nose, eares, armes and hands. The third is, for the propagation and renewing the *species* or kind, as the privie parts, testicles, and wombe. And this is my opinion, of the true distinction of mans body, furnished with so many parts, for the performance of so many faculties; which you, if you please, may approve of and follow. If not, you may follow the common and vulgar, which is, into three bellies, or capacities, the upper, middle, lower (that is, the head, breast and lower belly) and the limbs or joints. In which by the head we doe not understand all the Animall parts, but onely those which are from the crowne of the head to the first *vertebra* of the necke, or to the first of the backe, if according to the opinion of *Galen Lib. de ossibus*, where he makes mention of *Enarthrosis* and *Arthrodia*, we reckon the necke amongst the parts of the head. By the breast, whatsoever is contained from the coller bones to the ends of the true and bastard, or short ribbs, and the midriffe. By the lower belly, the rest of the trunk of the body, from the ends of the ribbs to the share-bones; by the limbs, we understand the armes and legges. We will follow this division in this our Anatomical discourse, because wee cannot follow the former in dissecting the parts of mans body, by reason the animall parts are mutually mixed with the vitall and naturall, and first of the lower belly.

The vulgar
division of
mans body.

Nature would not have this lower belly bony, because the ventricle might bee more easily dilated by meate and drinke, children might grow the better, and the body be more flexible. It is convenient we beginne our Anatomical administration from this, because it is more subject to putrefaction than the rest, both by reason of its cold and moist temperature, as also by reason of the feculent excrements therein contained. Yet before we goe any further, if the Anatomical administration must be performed in publike, the body bring first handsomely placed, and all the instruments necessary for dissection made ready, the belly must be devided into its parts, of which some containe, and other some are contained.

Why the belly
is not bony.

They are called containing, which make all that capacity which is terminated by the *Peritonaeum* or Rim of the belly. The vpper part whereof is bounded by *Galen* within the compasse of the direct muscles, and by a generall name is called *Epigastrium*, or the vpper part of the lower belly. That againe is devided into three parts, that is, into that which is above the navell, and which carries the name of the whole, into that which is about the navell, and is called the umbilicall or middle part; and lastly, into that which is below the navell, called the *Hypogastrium*, or the lower part of the lower belly.

The division
of the lower
belly.

In every of which three parts there be two laterall, or side parts to be considered, as in the *Epigastrium*, the right and left *Hypochondria*, which are bounded above and below, in the compasse of the midriffe, and the short ribbs. In the vmbilicall the two *Lumbares* (some call them *Latera fides*) which on both sides from the lowest parts of the breast, are drawne to the flankes, or hanch-bones; in the *Hypogastrium*, the two *Ilia*, or flankes, bounded with the hanch and share-bones. Neither am I ignorant, the *Ilia* or flankes, which the Greekes call *Λαγῆες* signifie all the emptie parts, from the ends of the ribs, even to the hanch-bones, whereupon they also call them *κεῖραρες* as if you should say, empty spaces, because they are not encompassed with any bone. Yet I thought good that this doctrine of deviding the belly should be more distinct, to call the parts which are on each side the navell *Lumbares*, and those on the lower part of the lower belly *Ilia*, flankes. But we must observe that the Ancients have been so diligent in deciphering the containing parts, that as exactly as might be, they designed the bowells contained in the belly, which being diverse lie in sundrie places; for the greater portion of the liver lies under the right *Hypochondrium*; under the left almost all the ventricle and spleene. Under the *Epigastrium* the lower orifice of the ventricle, and the smaller portion of the liver; In the *Lumbares*, or sides, in the right and upper part the right kidney, in the lower part towards the flankes, the

The *Hypo-*
chondria.

blinde gut: in the middle part thereof the collicke and emptie guts. In the upper part of the left side lies the left kidney, in the middle part, the rest of the emptie and collike guts. Vnder the region of the navell, lies the girdle or upper part of the kall, the collike gut thrusting it selfe also through that way. Vnder the *Ilia* or flanks, the right and left, lie the greater part of the gut Ileon, the hornes of the wombe in women bigge with child, and the spermaticke vessels in men and women. Vnder the *Hypogastrium* in the lower part lies the right, or straight gut, the bladder, wombe, and the rest of the kall.

A most certaine note of the part affected, by the place where the paine is.

If we know, and well understand these things, wee shall more easily discern the parts affected by the place of the paine, and cure it by fit application of remedies, without the hurting of any part. The distinction of such places, and the parts in those places, as seeming most profitable, I have thought good to illustrate by the placing these two following figures, in which thou hast deciphered, not onely the foresaid parts, containing, and contained, but also of the whole body, and many other things which may seeme to conduce to the knowledge of the mentioned parts. The Figures are these.

The Figure shewing the foreparts of the body.



- A The hairy Scalp, cald *τριχωτις*. Z The region of the navill, cald *lepus umbilicus*, or the middle part of the lower belly.
- b the forehead cald *Frontis*. *μετωπον*. A. The navill *umbilicus*. The roote of the belly *δρυπαλ*.
- c the temples cald *τεπορας*, *αροτουροι*. BB. The side, *Latera*, *πλευρα*. and in our Author, *Lumbi seu Lumbaris regio*.
- From b to d The compasse of the face.
- e The greater or inward corner of the eyes, cald *Canthus internus*. C. *Hypogastrium*, the water-courle, *Aquaticulus*, the lower part of the lower beelley, *ινεγυ*.
- f The lesser or externall angle of the eye, cald *Canthus externus*. DD. The flanks called *Ilia* and *κεντρεις*.
- * The lower eyebrow which is immovable, *Palpebra*. E. The Groine called *pubes* or *pecten*, *αλεις* *αλβιν*.
- g The cheek-ball cald *mala*, *μηλα*. FF. The Leske cald *inguen*, where those tumors are cald *Bubones*.
- h The cheek-puf cald *buccae*, *γναθος*. G. the yard with the foreskinne, *penis cum praputio*.
- i The ridge of the nose cald *Nasus externus*, *ριν*. H. the stones or testicles, with the cod or *scrotum*.
- k The nostrills cald *nares*, *μυκητες*. II. the shoulders *humeri*, *επωμιδες*.
- l The outward eare, *auris externa*. KK. the armes *Brachia*, *βραχια*.
- m The mouth made of the two lips, *Os*. L. the bowt of the arme, called *Gibber*, *ανδον*.
- n The chin cald *mentum*, *χιν*. M. the outside of the lower part of the arme cald *cubitus*, *αγκυς*.
- o The necke, *collum*, *αυχην* and *truncus*, and *δρυπαλ*. N. the wrest called *Brachiale*, *κερπος*.
- From o to e the pillar of the necke, *truncus*, and *δρυπαλ*. O. the after-wrest *postbrachiale*, *μετακερπον*.
- pp The hollow of the necke, cald *inguli*, *σφαρδι*. P. the Palme called *Palma* or *volo manus*, *θεναρ*.
- qq The patel bones, *claves*, *κλειδες*. q the backe of the hand *Dorsum manus*, *οπισθεναρ*.
- r The chest *pectus*, *σερρον*. QQ. the fore ann middle part of the thigh, where wee apply cuppingglasses to bring downe womens courles, *μημεν*.
- s The right brest.
- ss The left brest: to this Region we apply cordiall Epithemations moist and drie.
- tt The nipples of the breasts, *Papillae*, *θυλοι*. RR. the knee, *genus*, *γονυ*.
- u The trench of the heart which the Ancients called *καρδια*. The Latines *serobiculus Cordis*. This part is annoited for the mouth of the stomacke.
- From u to E the lower belly, *γαστρ*. SS. the leg, *Tibia*, *Κνήμη*.
- x The *Epigastrium* or upper part of the lower belly. TT. the calfe of the leg *fura*, *γαστρονήμων*.
- yy The *Hypochondria* or *Precordia*. VV. the instep, *tarsus*.
- * The outward Liver-remedies are applied to this place. XX. the top of the foote *Dorsum pedis*, *πυθ* *μοδης*.

YY. the inner Ankles, *σφυρα*. ZZ. the outward ankles. aa the toes of the feete, b the place under the inward ankle, where the veine called *Saphena* is opened.

The Figure of the backe parts of a man.



- A The forepart of the head, *syncephus*, *βρεγμα*.
 B. the top or crowne of the head *vertex*, *κορυφή*.
 C. the hinder-part of the head, *occipus*, *κόλις*
ἐπὶ τῷ.
 From D. to D. the face, *Facies*, *πρόσωπον*.
 * E. the eyebrowes *superctilia*, *ὀφρύς*.
 F. the upper eye-lid, *βλέφαρον*.
 * The tip of the nose cald *globulus nasi*.
 H. the backe part of the necke, cald *cervix*, *ἀντήρ*.
 and the nuke or nape of the necke. There is a
 hollownesse at the top of this *cervix*, where wee
 apply Seaton.
 I. the backe part of the shoulder top, called *ax-*
illa, *ὤμος*.
 KK. the shoulder blades *scapulae*, *ὀμοπλάται*.
 1, 2, 3. On this place wee set cupping glasses,
 4, 5, 6, 7. the backe *dorsum*, *ὠμῶν*.
 8, 9. the ridge, *spina dors*, *ρῆγες*.
 L the arme hole, *ala*, *μαχαλὴ*.
 * the elbow, *Gibber brachij*.
 M M M M. the sides, *Latera*.
 N N the loines *Lumbi*, or the region of the kid-
 nyes, *ὀσφες*.
 O O. the place of the hips, *coxendices*, where we
 apply remedies for the Sciatica.
 P. the place of the holy-bone, or *Os sacrum* where
 we apply remedies in the diseases of the right gut.
 Q. the place of the Rumpe or *Coccyx*.
 R R. the buttocks *Nates*, *κλώες*.
 S S. the backe parts of the thigh, *Femur*.
 T T. the ham, *Poples*, *ἰχρὺς*.
 V V. the calfe of the leg, *sura*.
 X X. the foote or *parvus pes*, *πῶς*.
 Y Y. the utter ancle, *Malleolus externus*.
 Z Z. the heele, *calx* or *calcaneus*, *ἰσχυα*.
 a a the sole of the foote *Planta pedis*, *ἰσχυὸν τῆς πῶδος*.
 b the inside of the lower part of the arme called
Ulna, *ὠλή*.
 c. the outside of the same, *Cubitus*, *πῦξ*.
 dd the wrest, *Carpus*.
 ee the backe part of the hand, *dorsum manus*. g. the
 forefinger *index*, *δείκνυσι*. h. the thumb, *pollex*,
ἀντίχειρ.
 i. the middle finger, *medius*, *ὠστ*.
 k the ring-finger *Annularis*, *medicus*, *ἰσχυρὸς*.
 l. the little finger, *Auricularis*, *minimus*, *ὠστὴς*.

CHAP. II

Of the containing parts of the Epigastrium, and the preparation
to Anatomical administration.

He containing parts of the *Epigastrium* are the *Epidermis* or thinne outward
 skinne, the true skinne, the fleshie or fatty Pannicle, the eight muscles of
 the *Epigastrium* with their common coate, the Rim of the belly, the five
 vertebra's of the loines, all the holy-bone, the hanch-bone, share-bone,
 the white line, and midriffe. Of these parts some are common to the whole body,
 as the three first; the other proper to the parts contained in the *Epigastrium* taken in
 generall. Which that you may see in their order, first you must cut round about the
 navell, to the upper superficies of the muscles, that so wee may keepe it, till such
 time, as occasion shall offer it self, to shew the vmbilicall vessels lying in that place,
 which are one veine, two arteries, & the *urachus* (if it be there.) Which being done,
 you must draw a straight line from the chest, over the breast-blade, even to the share-
 bone, which may divide the common containing parts, even to the white line.

The contain-
 ing parts of
 the lower belly

Then presently it will be convenient to draw two other lines across, or overthwart, of the like depth on each hand, from the circumference of the navell, even to the sides, that so on each part wee may draw the skinne more commodiously from the parts lying vnder it; the sight of which otherwise it would hinder. These things being done, the skinne must bee devided from the parts lying under it from the designed circumference left about the navell. Wee must teach how the skinne is twofold, the true and false, and render a reason of the name, which we will every where doe, as farre as the thing will suffer, and it shall lie in our power. And in doing or examining these things, it will be convenient diligently to inquire into the nine things mentioned in the preface. Wee will beginne with the skinne, because that part is first obvious to our senses.

CHAP. III.

Of the utmost skinne or Cuticle.

The skinne
twofold.
From what
parts the skin
cannot be se-
parated.



He skinne being the first part, and spread over all the body, is twofold, that is, the true, and bastard skinne. The true is called by the Greekes *Derma*, which may almost every where be pulled from the parts lying under it, which it invests; except in the face, eares, the palmes of the hands, soles of the feete, fingers, and privities, where it stickes so close that it cannot be separated.

The matter of
the Cuticle.

The bastard (which first of all wee will declare, because it first presents it selfe to our sight) is by the Greekes called *Epidermis*; because it covers the true skinne, they terme it commonly the Cuticle. The substance of it is excrementitious, and as it were a certaine drie flouring, or production of the true skinne. That it drawes not its substance from the seede is apparent by this, that as it is easily lost, so it is easily repaired, which happens not in parts truly spermaticall. This utmost thinne skinne, or cuticle, may two manner of wayes be made apparent by it selfe, and separated from the other, as by burning with fire, or ardent heate of the Sunne (in some delicate bodies, and such as are not accustomed to be conversant in Sun-shine.) The quantitie in thicknesse is very small; but the extent is most large, because it covers all the skinne; the figure of it is round, and long, like those parts which it invests. The compofure of it is obscure; yet because this Cuticle is the excrement of the true skinne, wee say it hath its matter from the excrementitious superfluitie of the nerves, veines, arteries, and substance of the true skinne.

The quantitie.

The figure.
The compo-
sure.

The number.

The tempe-
ratur.

The use

Why the cuti-
cle cannot be
restored in
scars.

It is in number one, like as the true skinne which it outwardly covers, that it might be a *medium* betweene the object, and fixed facultie of touching, diffused over all the true skinne which every where lies under it. For the temperature, by the common consent of Physitions, it is in the midst of all excesse; for that seeing it is the *medium* betweene the object and facultie, if it should be hotter, colder, moister, or drier, it would deceive the facultie by exhibiting all objects, not as they are of themselves, but as it should be; no otherwise than as to such as looke through red or greene spectacles, all things appeare red, or greene. Wherefore for this reason it was convenient the cuticle should be void of all sense. It hath no action in the body, but it hath use, for it preserves and beautifies the true skin; for it seemes to be given by the singular indulgence of nature, to be a muniment and ornament, to the true skinne. This providence of nature, the industrie of some Artizans (or rather *Curtizans*) doth imitate, who for to seeme more beautifull, doe smooth and polish it. By this you may understand; that not all the parts of the body have action, yet have they their use, because, according to *Aristotles* opinion; Nature hath made nothing in vaine. Also you must note that this thinne skinne, or cuticle being lost, may everie where be regenerated, unlesse in the place which is covered with a scarre. For here the true skinne being deficient, both the matter and former facultie of the cuticle is wanting.

CHAP. III.

Of the true skinne.



He true skinne called by the Greekes *Derma*, is of a spermaticke substance, wherefore being once lost, it cannot be restored as formerly it was. For in place thereof comes a scarre, which is nothing else but flesh dried beyond measure. It is of sufficient thicknesse, as appeares by the separating from the flesh.

The substance
Magnitude.

But for the extent thereof it encompasses the whole body, if you except the eyes, eares, nose, privities, fundament, mouth, the ends of the fingers where the nailes grow, that is, all the parts by which any excrements are evacuated. The figure of it is like the cuticle round and long, with its productions, with which it covers the extremities of the parts.

Figure.

It is composed of nerves, veines, arteries, and of a proper flesh and substance of its kinde, which wee have said to bee spermatickall, which ariseth from the proceffe of the secundine, which leade the spermaticke vessels even to the navell, in which place each of them into the parts appointed by nature, send forth such vessels, as are spread abroad and diffused from the generation of the skinne. Which also the similitude of them both, that is, the skinne and membrane *Chorion* do argue. For as the *Chorion* is double, without sense, encompassing the whole infant, lightly fastened to the first coate which is called *Ammios*; so the skinne is double, and of it selfe insensible (for otherwise the nerves were added in vaine from the parts lying under it) ingirting the whole body, lightly cleaving to the fleshie Pannicle. But if any object that the Cuticle is no part of the true skinne, seeing it is wholly different from it, and easily to be separated from it, and wholly void of sense: I will answer, these arguments doe not prevaile. For that the true skinne is more crasse, thicke, sensible, vivide, and fleshie, is not of it selfe, being rather by the assistance and admixture of the parts, which derived from the three principall it receives into its proper substance; which happens not in the cuticle. Neither if it should happen would it be better for it, but verily exceeding ill for us, because so our life should lie fit and open to receive a thousand externall injuries, which encompassse us on every side, as the violent and contrary acceffe of the foure first qualities.

Composure.

The skinne of
it selfe is void
of sense.

There is only one skin, as that which should cover but one body, the which it every where doth, except in those places I formerly mentioned. It hath connexion with the parts lying under it by the nerves, veines, and arteries, with those subja-cent parts put forth into the skinne investing them, that there may be a certaine communion of all the parts of the body amongst themselves.

The number.
Connexion.

It is cold and drie in its proper temper in respect of its proper flesh and substance, for it is a spermatickall part. Yet if any consider the sinewes, veines, arteries, and fleshie threds which are mixed in its body, it will seeme temperate, and placed as it were in the midst of contrarie qualities, as which hath growne up from the like portion of hote, cold, moist, and drie bodies. The vse of the skinne is to keepe safe and sound the continuitie of the whole body, and all the parts thereof, from the violent assault of all externall dangers, for which cause it is every where indewed with sense, in some parts more exact, in others more dull, according to the dignitie and necessitie of the parts which it ingirts, that they might all be admonished of their safetie and preservation. Lastly, it is penetrated with many pores, as breathing places, as we may see by the flowing out of sweate, that so the arteries in their *diastole* might draw the encompassing aire into the body, for the tempering and nourishing of the fixed inbred heate, and in the *Systole* expell the fuliginous excrement, which in Winter suppresseth by the cold aire encompassing us, makes the skinne blacke and rough. Wee have an argument and example of breathing through these, by drawing the aire in by transpiration, in women troubled with the mother, who without respiration live onely for some pretty space by transpiration.

Temperature.

Vse.

The reason
why the skin
is blacker and
rougher in
Winter.

CHAP. V.

Of the fleshie Pannicle.



After the true skiane, followes the membrane, which Anatomists call the fleshy Pannicle, whose nature that we may more easily prosecute and declare, we must first shew what a membrane is, and how many wayes the word is taken. Then wherefore it hath the name of the fleshie Pannicle. A membrane therefore is a simple part, broade and thin, yet strong and dense, white and nervous, and the which may easily, without any great danger be extended and contracted. Sometimes it is called a coate, which is, when it covers and defends some part. This is called the fleshie Pannicle; because in some parts it degenerates into flesh, and becomes musculous, as in a man from the coller bones, to the haire of the head, in which part it is therefore called the broad muscle, where as in other places it is a simple membrane, here and there intangled with the fat lying under it, from whence it may seeme to take or borrow the name of the fatty Pannicle. But in beasts (whence it tooke that name, because in those a fleshie substance maketh a great part of this Pannicle) it appeares manifestly fleshie and musculous over all the body, as you may see in Horses, and Oxen; that by that meanes being moveable, they may drive and shake off their flies, and other troublesome things, by their shaking and contracting their backs. These things considered, we say the fleshie Pannicle in its proper body, is of a nervous or membranous substance, as that which hath its originall from the coate *Amnios*, (which is next to the infant) dilated neare to the navell and stretched forth for the generation of this Pannicle; in which thing I thinke good to note, that as the membranes *Chorion* and *Amnios* mutually interwoven with small nervous fibers, encompasse and invest the child, as long as it is contained in the wombe; so the skinne and fleshie Pannicle knit together by such like bands, engirt the whole body.

What a membrane is.

Why it is sometimes called a coate, sometimes the fleshie and fatty Pannicle.

Why beasts have this pannicle wholly, fleshie or musculous.

The substance

The magnitude and figure.

Number. Composition.

Therefore the fleshie Pannicle is equall in magnitude and like in figure to the true skinne, but that it lies under it, and is contained in it, in some places mixt with the fat, in others encreased by the flesh interwoven with it, and in other some is onely a simple membrane.

The composition of it is such, as the sight of it presents to our eye, that is, of veines, arteries, nerves, and the proper flesh, some whites mixed and interlaced with fat, and sometimes with musculous flesh. It is but one, by reason of the use wee shall presently shew; It is situated betweene the skinne and fat, or common coate of the muscles, annexed to these and the other parts lying under it, by the veines, nerves, and arteries ascending from these inward parts, and implanting themselves into the substance thereof, and then into the true skinne.

The temperature. The use.

The temperature thereof is diverse, according to the varietie of the parts interwoven with it. The use of it is, to leade, direct, and strengthen in their passage, the vessels which are disseminated into the true skinne, and the whole superficies of the body. But in beasts it hath another commoditie, that is, it gives a shaking or trembling motion to their skinne and backe, for that cause we formerly touched.

CHAP. VI.

Of the Fat.



The fat comming neare the condition of an excrement, rather than of a part (as we said, when we treated of the simular parts) is of an oily substance, bred of the aiery and vaporious portion of the blood, which sweating through the pores of the coates, or mouthes of the vessels, becomes concreete about the membranes, and nerves, and cold bodies, and turnes into fat by the coldnesse of the place. Whereby we may know that cold, or a more remisse heate, is the efficient cause of fat, which is manifest by contemplation not onely of creatures of diverse kindes, but also by those of the same species and sexe, if so be that the one be colder than the other.

The fat is rather an excrement than a part. The substance

The efficient cause of fat.

By

By which we may understand that the fat is the more or lesse in quantity according to the different temper of the whole body, and of its particular parts; for its composition, it consists of that portion of the blood which we formerly mentioned, intermixt with certaine membranes, nervous fibers, veines and arteryes. The greatest part of it lyes betweene the fleshy pannicle and the common coate of the Muscles, * Otherwise it is diffused over all the body, in some places more, in some lesse, yet it is alwaies about the nervous bodyes, to which it delights to cleave. Most Anatomists enquire whether the fat lye above or beneath the fleshy pannicle. But methinks this question is both impertinent and idle; being we often see the fat to be on both sides. It is of a middle temper betweene heat and cold, being it ariseth of the more aery portion of the blood; although it may seeme cold in respect of the efficient cause, that is, of cold by which it concreats. For the rest, moisture is predominant in the fat. The use therof is, to moisten the parts which may become dry by long fasting, vehement exercise or immoderate heat, and besides to give heat, or keep the parts warme. Although it doe this last rather by accident, than of its owne nature, as heated by exercise, or by some such other chance; it heats the adjacent parts, or may therefore be thought to heat them, because it hinders the dissipation of the native and internall heat; like as cold heats in winter, whereby the bellyes are at that time the hotter. I know some learned Physicians of our time stiffly maintained, that the fat was hot, neither did they acknowledge any other efficient cause thereof, than temperate heat and not cold. But I thinke it best to leave the more subtile agitation of these questions to naturall Philosophers. But we must note, that at the joints which are more usually moved, there is another sort of fat, farre more solid and hard, than that which we formerly mentioned, often found mixed with a viscid and tough humor like the whites of Eggs, that so it might be sufficient for a longer time to moisten these parts, subject to be hurt by drynesse, and make them slippery & so fitter for motion, in imitation whereof they usually grease hard bodyes, which must be in frequent motion, as coach wheelles and axeltrees. And there is another kind of fat, which is called *Serum*, seame, in one thing differing from the ordinary fat, that is much dryer; the moister and softer portion of the fat being dissipated by the raging heat of the place. For it is found principally about the midriffe, where there are many windings of arteryes and veines, and it is also about the reines, Loines, and *basis* of the heart. The fat is wasted by long fasting; is dried and hardened by vehement exercise and immoderate heate. Hence it is that it is much more compact in the palmes of the hands, and soles of the feet, about the eyes and heart, so that it resembles the flesh in densitie and hardnesse; because by the continuall motion and strong heat of these parts, the thinner portion being dissipated & diffused, the more Grosse & terrestriall remaine.

The quantity.

The composition.

The site.

I was present at the opening a body, Feb:

1630. in which the fat, in the lower part of the lower belly

was in thickness above 8,

inches, upon the breast betweene 4 and 5

inches: which I thought good to remember

in this place both for the rarity of the thing, as also

because it was increased by report, and the place mistaken

some saying the *Omentum* or *Call* was so

thick, which was false, for it did not much

exceed the quantity of that part, in other fat men.

The Temper. The use.

The solidier fat, or seame.

In what parts and for what cause the fat is more dense.

CHAP. VII.

Of the common coate of the Muscles.

NExt under the fat, appeares a certaine coate, spread over all the Muscles, and called the common coate of the Muscles, it is of a nervous substance; as all other membranes are. The quantity and breadth thereof is bounded by the quantity of the Muscles which it involves, and fits it selfe to, as that which encompasses the Muscles of the *Epigastrium*, is of equall largnesse with the same Muscles. The figure of it is round. It is composed of veines, nerves, arteryes and its peculiar flesh consisting of three sorts of fibers; the beginning of it is from the *Periostium*, in that part where the bones give ligaments to the Muscles; or according to the opinion of others, of the nervous and ligamentous fibers of the Muscles, which rising up and diffused over the fleshy superficies thereof, are united for the generation of this coate. But this membrane arising from the *Periostium* (as every membrane which is below the head takes its originall from the *Periostium* either primarily, by the interposition of no *Medium*, or secondarily) is stretched over the Muscles by their tendons. But if any object, that this membrane pluckt from the belly of the Muscle, may seeme

The substance

The quantity

The Composition.

The Original

to end in a ligament. I will answer, that it is the condition of every nervous part, so to binde or fasten it selfe to another part of his owne kinde as to a stay, so that it can scarce be pluckt from thence. We see the prooffe hereof, in the *Peritoneum* or *Rim* in the *Epigastrium* or lower part of the lower belly. That which covers the Muscles of the *Epigastrium* is but one, unlesse you had rather part it in two, the right and the left distinguished by the interposition of the *Linea Alba*, or white Line. It is situate betwixt the fat and Muscles; for it is fastened above and below to these parts with fibers, which in smallnesse and fitnessse exceed the Spiders web. But by its vessells, it participates with the three principall parts, and is of a cold and dry temper. The use of it is, to containe the Muscles in their naturall vnion, and to keepe them as much as in it lyes, from putrification, which may happen to them from *pus* or matter, which is often cast forth of the simular parts into the empty spaces and distances of the Muscles. Wherefore going about to separate the fat of the *Epigastrium* (where thou must begin the dissection of mans body) you must have a care, that you hurt it not with your knife, but that, before you touch the Muscles, see you artificially take it away, that you may the more easily separate the Muscles lying under it, distinguished by a manifest space at the white Line, which is made by the meeting together of the proper coates of all those muscles.

CHAP. VIII.

What a Muscle is, and how many differences there be thereof.


What a Muscle is,

How the circular motion is performed,

From whence the differences of muscles are drawne.

Differences of muscles from their substance.

Differences of Muscles from their original,

 Muscle is the instrument of voluntary motion; and simple voluntary motion is performed six manner of wayes, upwards, downewards, forwards, backwards, to the right hand and to the left; but the compound one way, which is circularly, the which is performed by the continuall succession of the motion of the Muscles ingirting the part. Such a Motion Falconers use when they stretch forth their hand and Lure their Hauke. We have some parts, which have motion without a Muscle; but that motion is not voluntary; such parts be the heart, stomacke, gutts, both the bladders (that is, that of the Gall and that of the urine) and diverse other which have the motions of attraction, expulsion and retention, by the meanes of the three sorts of fibers; for they draw by the right, expell by the transverse, and retaine by the oblique. The differences of Muscles which are many and diverse, are taken from their substance, originall, insertion into the part which they move, forme or figure, holes or openings, magnitude, colour, site, kind of fibers, their conjugation or connexion, heads, bellies, tendons, opposition in action and office. Some in substance are nervous, venous, arterious, because they have manifest nerves, veines and arteryes, as the Midriffe, the Intercoastall and Epigastricke Muscles and many more, and that for their difference from other Muscles, into which neither nerve nor veine, or Arteryes are manifestly inserted, although secretly they admit them all for sense and motion, life and nourishment, such are the Muscles of the wrist, the wormy muscles of the hands and feet; for if there be any nerves observed in them, they are very small. Some had rather make the difference of Muscles thus, that some of them are fleshy, some nervous, others membranous. From their Originall, some arise from the bones, as these which move the hands, armes and Leggs; others from gristles, as the Muscles of the throat; others from membranes which invest the tendons, as the wormy Muscles of the hands and feet; others from ligaments as the Extenders of the fingers; others from other muscles, as the two lower Muscles of the yard which proceed from the Sphincter Muscle of the fundament. Others have no originall, as the membrane which we call the fleshy pannicle assumes flesh in certaine places, and degenerates into a Muscle; such are the *Cremaster* or hanging Muscles of the testicles, the large Muscles of the face, and if you please the Midriffe, as that which is composed of two coates, the one in compassing the ribbs and the *Peritoneum*, hath flesh in the midst betweene the two membranes. And moreover some Muscles have their originall from one onely bone, as these which bend and extend the

the Cubite, others arise of many bones as the oblique descending, the Dorsall and many Muscles of the necke, with arise together from many spondyls and sides of spondyls. There be others according to the opinion of some men, both from the bones and gristles of the *Pubis* at the right or direct Muscles of the *Epigastrum*, yet by their favour I thinke otherwise. Because by the Anatomical and received axiome, A Muscle is there thought to take his beginnings from whence he receives a nerve; but these Muscles take a nerve from the intercostall muscles, wherefore their originall ought to be referred to the sides of the breast-blades, as shall be shewed in due place. From their insertion arise these differences, some are inserted into a bone, as those which move the head, Armes and Legs; others into a gristle, as those of the Throate, eyelids, nose and the oblique ascendant muscles of the *Epigastrum*; some into a bone and gristle both, as the right muscles of the *Epigastrum* and the Midriffe; some into the skin, as the muscles of the lips; others into the Coates as the muscles of the eyes; others into Ligaments, as the muscles of the yeard. But these differences following may be drawne both from their insertion and originall. For some muscles arising from many parts, are inserted into some one part, as divers of these which move the arme, and the shoulder, which arising from many spondiles are inserted into the bone of the shoulder and the shoulder blade. Others arise from one part, and insert themselves into more, as those which arise from the bottome of the shoulder blades, are extended and inserted into some eight or nine of the upper ribbs, to helpe respiration; and the benders and extenders of the fingers and toes; Others arising from many bones are inserted into as many, as some of those which serve for respiration, to wit those which we call the hinder Saw-muscles and the *Semispinatus*, which sends a tendon into all the ribbs. Others have their originall from many bones, and end in gristles of the seven ribbs, as those two which lye under the *Sternon*. Moreover also these differences of muscles may be drawne from the originall and insertion, that some proceed from bones and are inserted into the next bone, to helpe and strengthen the motion thereof, as the three muscles of the Hip; others arise from an upper bone & are not inserted into the next, but into some other, as the long muscles. Some are named from the part they move, as the temporall muscles because they move the temples; others from their office, as the grinding muscles, because they move the skin as a mill, to grinde asunder the meale. From their forme or figure, because some are like Mice, other like Lizards which have their Leggs cut off, for that they imitate in their belly, body or tendon, the belly or taile of such creatures, & from whence the names of *Musculus* and *Lacertus* are derived. Such are those which bend the wrest, and which are fastened to the bone of the Leg, & which extend the foot; Others are triangular, as that which lifts up the arme, called *Epomis* or *Deltoides*, and that which drawes the arme to the breast, called the Pectorall muscle. Others quadrangular as the Rhomboides, or Lozenge muscle of the shoulder blade and the two hindesum-muscles serving for respiration, and two of the wrests which turne down the hand; Others consist of more than foure angles, as the oblique descending, and that muscle with joynes it selfe to it from the shoulder blade; others are round and broad, as the Midriffe, others circular as the *Sphincter* muscle of the fundament and bladder; others are of a pyramidall figure, as the seaventh muscle of the eye, which compasses the opticke nerve in beasts but not in men. Others have a semicirculer forme, as that which shuts up the eye, seated at the lesser corner thereof. Others resemble a Monks cowle, or hood, as the *Trapezius* of the shoulder blade. Besides others at their first originall are narrow, but broad at their insertion, as the Saw-muscle of the shoulder and the transverse of the *Epigastrum*; others are quite contrary, as the three Muscles of the Hippe; others keepe an equall breadth or bignesse in all places, as the intercostall muscles and these of the wrest; others are long and slender, as the long muscle of the thigh; others are long and broad, as the oblique descending muscles of the *Epigastrum*; others are directly contrary, as the Intercostall, which are very narrow. From their perforations, for some are perforated, as the Midriffe which hath three holes, as also the oblique and transverse of the *Epigastrum*, that so they may give passage forth to the preparing spermaticke vessells, and to the ejaculatory vessells, the Coate *Erythroides* associating and strengthening them; others are not perforated. From their magnitude

Where a
muscle hath
its originall.

Differences of
muscles from
their insertion

Differences of
muscles taken
from their
figure.

Differences
from their
perforations.

From their
magnitude,
for

From their
Colour,

for some are most large, as the two muscles of the Hipp, others very small, as the eight small muscles of the necke, and the proper muscles of the Throtle, and the wormy muscles. Others are of an indifferent magnitude. From their colour, for some are white and red, as the Temporall muscles, which have Tendons comming from the midst of their belly; others are livide, as the three greater muscles of the calfe of the leg, which colour they have by the admixtion of the white, or tendinous nervy coate with the red flesh, for this coat by its thicknesse darkning the colour of the flesh, so that it cannot shew its rednesse and fresh colour, makes it seeme of that livide colour. From their scituation, for some are superficiali, as those which appeare under the skin and fat; others deepe in and hid, as the smooth and foure twin muscles; some are stretched out and as it were spread over in a streight and plaine passage, as the muscles of the thigh which move the legge, except the Ham-muscle; others oblique, as those of the *Epigastrium*; other some transverse, as the transverse of the *Epigastrium*, where you must observe, that although all the fibers of the muscles are direct, yet we call them oblique, and transverse by comparing them to the right muscles, as which by the concourse of the fibers make a streight or acute angle.

From their
Site,

From their
fibers,

From the sorts of fibers; for some have one kinde of fiber; yet the greatest part enjoy two sorts running so up and downe, that they either are crossed like the letter X, as happens in the pectorall and grinding muscles; or else doe not concur, as in the Trapezij. Others have three sorts of fibers, as the broad muscle of the face.

From their
connexion,

From their coherence and connexion, or their texture of nervous fibers; for some have fibers somewhat more distant and remote immediately at their originall, than in other places, as you may see in the muscles of the buttocks; Others in their midst and belly, which by reason thereof in such muscles is more big or tumid, their head and taile being slender, as happens in most of the muscles of the arme and leg, in which the dense masse of flesh interwoven with fibers, disioynes the fibers in so great a distance; in othersome the fibers are more distant in the taile, as in the greater Saw-muscle arising from the bottome of the shoulder blade; in others they are equally distant through the whole muscle, as in the muscles of the wrest and betweene the ribbs.

From their
head,

From their head; for in some it is fleshy interwoven with few fibers, as in the muscles of the buttocks; in others it is wholly nervous, as in the most-broad-muscle common to the arme and shoulder blade, and in the three muscles of the thigh proceeding from the tuberosity of the hucle bone; in some it is nervous and fleshy as in the internall and externall muscle of the arme. Besides some have one head, others two, as the bender of the elbow and the externall of the legge, others three as the Threeheaded muscle of the thigh. But wee must note that the word nerve or sinew is here taken in a large signification, for a ligament, nerve and tendon; as *Galen* saith (*Lib. de Ossibus*) and moreover we must observe, that the head of a muscle, is one while above, another while below, otherwhiles in the midst as in the Midriffe, as you may know by the insertion of the Nerve, because it enters the muscle by its head.

From their
belly,

From their belly also, there be some differences of muscles taken; for some have their belly immediately at their beginning, as the muscles of the buttocks, others at their insertion, as the Midriffe. Others just at their head, as those which put forth the Calfe of the leg; in others it is somewhat further off, as in those which draw backe the arme, and which bend the legge; in others the belly extends even from the head to the taile, as in the intercostall muscles and these of the wrest; in others it is produced even to their insertion, as in those of the palmes of the hands and soles of the feet; some have a double belly, distinguished by a nervous substance; as those which open the mouth, and those which arise from the roote of the lower proësse of the shoulder blade.

From their
Tendons,

Moreover the differences of muscles are drawne also from the Tendons, for some have none, at least which are manifest, as the muscles of the lips and the sphincter muscles, the intercostall and those of the wrest; others have them in part, and want them in part, as the Midriffe; for the Midriffe wants a Tendon at the ends of the shorter ribs, but hath two at the first *Vertebra* of the Loines in which it is terminated;

Others

Others have a Tendon indeede. But some of these move with the bone, some not, as the muscles of the eyes, and besides, some of these have broad and membranous tendons, as the muscles of the eyes and *Epigastrium*, except the right muscles; in others they are thicke and round, as in the benders of the fingers; in others they are lesse round, but more broad than thicke, such is the Tendon arising from the twin muscles and *Soleus* of the legge: others have thort Tendons, as the muscles which turne downe the hand; other some long, as those of the palmes of the hands and soles of the feet; besides others produce Tendons, from the end of their belly which Tendons are manifest, others from the midst, as the Temporall muscles.

Besides also others diffuse many tendons from their belly, as in the hands the benders of the fingers, and the extenders of the feet. Other some put forth but one, which sometimes is devided into many, as those which bend the third articulation of the foot; other while many muscles by their meeting together make one Tendon, as the three muscles of the Caste of the leg, and those which bend the cubit and leg. All tendons have their originall, when the nerves and ligaments disperfed through the fleshy substance of a muscle, are by litle and litle drawne and meet together, untill at last carried to the joynt they are there fastened for the fit bending and extension thereof. From the contrariety of their Actions, for some parts have contrary muscles, benders and extenders; Other parts have none, for the Cods and fundament have onely lifters up. From their function, for some are made for direct morions, as those which extend the fingers and toes; others for oblique, as the *Supinators* of the hand and the *Pronators*; others performe both, as the pectorall muscle, which moves, the Arme obliquely upward and downeward, as the upper and lower fibers are contracted; and also out right, if all the fibers be contracted together, which also happens to the *Deltoides* and *Trapezius*. I have thought it good to handle particularly these differences of muscles, because that by understanding them the prognosticke will be more certaine; and also the application of remedies to each part; and if any occasion be either to make incision, or suture, we may be more certaine, whether the part affected be more, or lesse nervous.

From their
Action.

From their
function.

CHAP. IX.

Of the parts of a Muscle.

HAVING declared the nature and differences of a muscle, we must note that some of the parts thereof are compound, or universall, others simple or particular. The compound are the head, Belly and taile. The simple are ligaments, a nerve, flesh, a veine, artery and coate. For the compound parts, by the head we understand the beginning and originall of a muscle, which is one while ligamentous and nervous, otherwhiles also fleshy. By the belly, that portion which is absolutely fleshy; But by the taile, we understand a Tendon consisting partly of a nerve, partly of a ligament promiscuously comming forth from the belly of the muscle. For as much as belongs to the simple, which are fixe in number, three are called proper, and three common. The proper are a Ligament from a bone, a nerve proceeding from the Braine, or spinall marrow, and flesh compact by the concretion of blood. The Common are, a veine from the Liver or trunk arising from thence; an artery proceeding from the Heart, a Coate produced by the nervous & ligamentous fibers spreading over the superficies of the muscle. But for the simple use of all such parts, the nerve is as it were the principall part of a muscle, which gives it sense and motion, the Ligament gives strength, the flesh contains the nervous and ligamentous fibers of the muscle and strengthens it filling up all the void spaces, and also it preserves the native humidity of these parts and cherisheth the heat implanted in them; and to conclude, defends it from all externall injuries; for like a fan it opposeth it selfe against the heat of the Sunne; and is as a garment against the cold; and as a cushion in all falls and bruises, and as a buckler or defence against wounding weapons. The veine nourishes the muscle, the arterie gives it life, the coat preserves the

The compound & simple parts of a muscle.

What use each simple part hath in a muscle.

the harmony of all the parts thereof, lest they should be any wayes disioyned or corrupted by purulent abscesses breaking into the empty or void spaces of the muscles, as we see it happens in a Gangrene, where the corruption hath invaded this membrane by the breaking out of the more acride matter or filth.

CHAP. X.

A more particular inquisition into each part of a muscle.

The nature of
a Ligament.



The threefold
use of a Liga-
ment.

What a nerve
is.

What wee
meane by the
nervous and
Ligamentous
fibers.

By what
power the
simular parts
principally
draw, or
attract.
What and of
how many
sorts the flesh
is.

Aving gone thus farre, it remaines, that we more particularly inquire into each part of a muscle, that (if it be possible,) nothing may be wanting to this discourse. Wherefore a Ligament properly so called, is a simple part of mans body, next of a bone and gristle, the most terrestriall, dry, hard, cold, white, taking its originall immediatly, or by the interposition of some Medium from the Bones, or Gristles (from whence also the Muscles have their beginning) wherby it comes to passe that a ligament is void of sense, unlesse it receive a nerve from some other place; (For so the Ligaments which compose & strengthen the Tongue and yeard, are partakers of sense) and it inserts it self into the bone and gristle that so it may bind them together, and strengthen and beautifie the whole joynt or connexion; (for these three be the principal uses of a Ligament) then diffusing it self into the membranes and muscles to strengthen those parts. A nerve to speake properly, is also a simple parte of our body, bred and nourished by a grosse and Phlegmaticke humor, such as the braine, the originall of all the nerves, and also the Spinall marrow endowed with the faculty of feeling and oftentimes also of moving. For there be divers parts of the body which have nerves, yet are destitute of all voluntary motion, having the sense onely of feeling, as the membranes, veines, arteries, guts and all the entrailes. A nerve is covered with a double cover from the two membranes of the braine, and besides also with a third proceeding from the ligaments which fasten the hinder part of the head to the *Vertebra's*, or else from the *Pericranium*. Wee understand no other things by the fibers of a nerve, or of a Ligament, than long and slender threds, white, solid, cold, strong more or lesse according to the quantity of the substance, which is partly nervous and sensible, partly Ligamentous and insensible. You must imagine the same of the fleshy fibers in their kind; but of these threds some are straight for attraction, others oblique for retention of that which is convenient for the creature, and lastly some transverse for the expulsion of which is unprofitable. But when these transverse threds are extended in length, they are lessened in bredth; but when they are directly contracted, they are shortened in length. But when they are extended all together as it were with an unanimous consent, the whole member is wrinkled as contracted into it selfe, as on the contrary it is extended when they are relaxed. Some of these are bestowed upon the animall parts, to performe voluntary motions; others upon the vitall to performe the agitation of the Heart and Arteries; others upon the naturall for attraction, retention and expulsion. Yet we must observe, that the attraction of no simular part is performed by the helpe of the foresaid fibers or threds, but rather by the heat implanted in them, or by the shunning of Emptinesse, or the familiarity of the substance. The flesh also is a simple and soft part composed of the purer portion of the blood insinuating it selfe into the spaces betweene the fibers, so to invest them for the uses formerly mentioned. This is as it were a certaine wall and Bulwarke against the injuries of heat and cold, against all falls and bruises, as it were a certaine soft pillow or cushion yeelding to any violent impressiō. There be three sorts of flesh; one more ruddy, as the musculous flesh of perfect creatures and such as have blood; for the flesh of all tender and young things having blood, as Calves, and also of all sorts of fish, is whitish, by reason of the too much humidity of the blood. The second kinde is more pallid, even in perfect creatures having blood, such is the flesh of the heart, stomacke, weasond, guts, bladder, wombe. The third is belonging to the entrailes, or the proper substance of each entrail, as that which remaines of the Liver (the veines, arteries and coate being taken away) of the bladder

bladder of the Gall, braine, kidneys, milt. Some adde a fourth sort of flesh which is spongy, and that they say is proper to the tongue alone.

A veine is the vessel, pipe or channel of the blood, or bloody matter; it hath a spermaticke substance, consists of one coate composed of 3 sorts of fibers. What a veine is.

An Artery is also the receptacle of blood but that spirituous and yellowish, consisting in like manner of a spermaticke substance; But it hath two coats, with three sorts of fibers, the utmost whereof is most thin, consisting of right fibers and some oblique: But the inner is five times more thicke and denser than the utmost, interwoven with transverse fibers; and it doth not onely containe blood and spirit, but also a serous humor, which wee may believe because there bee two emulgent Arteryes, as well as veines. What an artery is.

But the inner coat of an Artery is therefore more thick, because it may containe blood which is more hot, subtle and spirituous; for the spirit, seeing it is naturally more thin and light and in perpetuall motion, would quickly flye away, unlesse it were held in a stronger hold. There is other reason for a veine, as that which contains blood grosse, ponderous and slow of motion. Wherefore if it had acquired a dense and grosse coate, it could scarce bee distributed to the neighbouring parts; God the maker of the universe, foreseeing this, made the coats of the vessels contrary to the consistence of the bodies contained in them. The *Anastomosis* of the veines and Arteryes, that is to say, the application of the mouthes of the one to the other, is very remarkeable, by benefit of which they mutually communicate and draw the matters contained in them, and so also transfuse them by insensible passages, although that *anastomosis* is apparent in the veine and artery that meet together at the joint and bending of the Arme, which I haue sometimes shewed in the Physicke schooles, at such time as I there dissected Anatomyes. Why an Artery is more thicke and dense than a veine.

But the action or function of a muscle is either to move, or confirme the parte according to our will, into which it is implanted; which it doth when it drawes it selfe towards its originall, that is to say, its head. But wee define the head by the insertion of the nerve, which wee understand by the manner of the working of the Muscle. The mutual *Anastomosis* of the veines and arteries.

CHAP. XI.

Of the Muscles of the Epigastrium, or lower belly.

NOW seeing that wee haue taught, what a muscle is, and what the differences thereof are, and what simple and compound parts it hath, and what the use, action and manner of action in each part is; it remaines that wee come to the particular explication of each Muscle, begining with those of the lower belly, as those which we first meet withall in dissection.

These are 8 in number, 4 oblique, 2 on each side, two right or direct one, on the right, another on the left side; and in like manner 2 transverse. All these are alike in force, magnitude and action, so mutually composed, that the oblique descendant of one side, is conjoined with the other oblique descendant on the other side, and so of the rest. Where it is manifest.

We may adde to this number the 2 little Supplying or Assisting muscles which are of a *Pyramidal* forme and arise from the share-bone, above the insertion of the right muscles; Of the oblique muscles of each side the one ascends, the other descends, whereupon it comes to passe, that they are called the Oblique descendant and Ascendant Muscles. Those oblique which wee first meet with, are the descendant, whose substance is partly sanguine, partly spermaticke; for they are fleshy, nervous, ligamentous, veinous, arterious and membranous. Yet the fleshy portion is predominant in them, out of which respect *Hippocrates* is wont to expresse the muscles by the name of fleshes; their greatnes is indifferent betweene the large and the small muscles; their figure 3 square. They are composed of the fore-mentioned parts, they are two From whence a muscle hath its beginning or head.

Their connexion.
Their temperament.
Their action.

The oblique ascendant.

Their site and connexion.

Their Action

The right muscles of the Epigastrium.

Their site.

Originall.

in number; their site is oblique taking their beginning, from the touching of the great saw Muscle and from the sixt and seaventh true ribbes, or rather from the spaces between the sixe lower ribbes, and rather on the forepart of the muscles than of the ribbes themselves, from whence shunning the *Vertebra's* of the loines, the fleshy parts of them are terminated in the externall and upper eminency of the Haunch-bone, and the Membranous end in the lower eminency of the share-bone and the White-line. Yet *Columbus* dissenting from this common description of the oblique Muscles, thinks that they are onely terminated in the White line and not in the share-bone. For (saith he) wherefore should they be inserted into the share-bone which is not moved? But because it would bee an infinite labour and trouble to set downe at large the severall opinions of all Authors of Anatomy, I have thought it sufficient for me to touch them lightly by the way. Their connexion is with the oblique ascendant lying vnder them, and with the direct, or right. Their temperament is twofold, the one hot and moist by reason of the belly and the fleshy portion of them; the other cold & dry in respect of their ligamentous and tendinous portion. Their action is to draw the parts into which they are inserted towards their originall, or els to unite them firmly. Yet each of these privately and properly drawes the hip in an oblique manner towards the *Cartilago Scutiformis* or breast-blade. Then follow the oblique ascendant, who have the same substance, quantity, figure, composure, number and temper the descendant have. They are scituate between the descendant and transverse with whom they have connexion, especially by the vessels which are brought from the parts beneath. All the fleshy parts arise from the rackbones of the Haunch to the ends of the bastard ribs, which they seeme to admit above and below, being fleshy even to the fourth, and then becoming membranous they take their way to the white line, with a double *aponeurôsis*, which passes through the right Muscles above and below, as wee may plainly see from the navill downewards. In their fleshy part they draw their originall from the spine of the Haunch bones a little lower than the descendent end in their fleshy parte. But for their membranous parts, they arise before from the share bone, but behinde from the spondiles of the Holy bone, and *Vertebra's* of the loines obliquely ascending vpwards to the white line, into which they are terminated by an *aponeurôsis* or membranous tendon (which seemes to penetrate the right Muscle vpwards and downewards, especially vnder the navil) but by their fleshy part at the ends of all the bastard ribbes, which they seeme to receive above and below. And because these muscles are terminated in the white line, they have also another use, yet such as is common to all the muscles of the *Epigastrium*, that is, to presse down the Guts. Their action is (if they performe it together) to draw downe the chest, and dilate the breast; but if their actions be separate, they draw the chest to the hip with an oblique motion. After these follow the right muscles, so called because they descend according to the length of the body, & because they have right or streight fibers.

Wee will say nothing (to shunne prolixitie, which in all other places wee will avoid) of their substance and other conditions, which they have common with the fore mentioned Muscles. They are scituate in the eminentest or extuberating region of the belly, bounding the *Epigastrium* taken in generall, (or the superficially belly,) they are devided by the manifest intercourse of the white line, even to the Navell, in which place they seeme to be united even to the place of their insertion. They draw their originall not from the share bone, as some would have it, but according to the insertion of their nerves, from the sides of the *Cartilago scutiformis* & the ends of the sixt seventh and eighth ribs; but they end in the share bone where they make a common tendon sufficiently strong and short. *Sylvius*, *Vesalins* and *Columbus* thinke they arise from the share bone, because they cannot be inserted into that bone, because it is immoveable. You may perceive in these Muscles certaine nervous & transverse intersections, often times three in number for the strength of these Muscles (of which *Galen* makes no mention, although they may be seene in Apes.) And also in the inner side of these muscles you may see foure veines and as many arteryes, of which some creepe upwards, others run downewards. The upper called the Mamillary descend from the Axillarie by the side and lower partes of the *Sternon*, the slenderer portions thereof being distributed

by

by the way, to the *Mediastinum*, and about the fourth and fifth rib to the Dugges, from whence they take their name.

That which remains breaking out by the sides of the Brest-blade inserts it selfe into those muscles creeping along, even almost to the navell; in which place they are manifestly united (that is the veines with the arteries, and arteries with the arteries) with the Epigastricke, which ascend from the vpper part of the Iliackes on each side under the said muscles untill they meet with these 4. mamillary vessels. That you may finde this concurrence of the veines and arteries about the navill, you must follow both the upper and the lower somewhat deepe into the flesh, pressing the blood on both sides from above downwards, and from below upward; untill you shall finde the exosculation of these vessels, which will appeare by this, that the blood will flow from this into that and from that into this, otherwise you can scarce perceiue it, by reason of the smallnes of such vessels which want blood. But that by the benefit of such concurrence of the vessels, the matters may be communicated and transported both from the wombe to the dugs, and againe from the dugs to the wombe, appeares in Nurses, who want their courses, when the milke comes into their dugs, and on the contrary lose their milke when their courses flow plentifully. Otherwise to what purpose should there be such concurrence betweene the vessels of the pappes and wombe, for there are veines and arteries diffused to the sides of the wombe from the roote of the Epigastrickes; for indeed the Epigastrickes which in their ascent meete with the mamillary, goe not to the wombe, though they be next to them, and arise from the same trunk with the Hypogastricke veine of the wombe. The Action of these muscles is, to move or draw neere together the parts of the Hypogastrium to the *præcordia* or Hypochondryes. Their use, in *Columbus* opinion is, to draw the Brest downwards so to dilate it. At the ends of these Nature hath produced two other small Muscles from the upper part of the share bone, of a triangular figure for the safety of the thicke and common tendon of the right Muscles, whereupon they are called *Succenturiati*, or assisters.

The meeting together of the Epigastrick and mamillary veines and arteries.

Their action, Their use.

Some (moved with I know not what reason) would haue these two small Muscles to help the erection of the yeard. *Columbus* thinks they should not be separated from the right, and that they only are the fleshy beginnings of the right. But on the contrary *Fallopins* manifestly proves them different and separate from the right and shewes their use. The Transverse remaine to be spoken of, so called by reason of their fibers which make right angles with the fibers of the right Muscles.

The Pyramidal or assisting muscles.

The transverse muscles of the Epigastrium.

They haue a quadrangular figure situate vpon the greatest part of the *Periosteum*, to which they sticke so close that they scarce can be separated. They take their originall from the production of the loines, the Eminency of the Haunch-bone, the transverse productions of the *vertebra's* of the loynes and the ends of the bastard ribs; contrary to the opinion of many, whom the insertion of the nerve convinces, but they end in the white line, as all the rest doe.

Their figure and site.

Their action is to presse the guts, especially for the expulsion of excrements.

Their Action.

But all the 8 recited Muscles, besides their proper use, haue another common, that is, they stand for a defence or Bulwarke for all the parts lying under them, and serve for the expulsion both of the excrements, infant, and vapours, and also for the strengthening of the voice, as experience shewes in those who sound Trumpets and Cornets.

The common use and action of the eight muscles of the Epigastrium.

Therefore these Muscles doe equally on every side presse the Belly; But the Midriffe, the intercostall Muscles assisting it, doth drive from above downwards, from which conspiring contention followes the excretion of the excrements by the fundament; but unless the Midriffe should assiste, these Muscles would presse the excrements no more downwards, than vppward to the mouth.

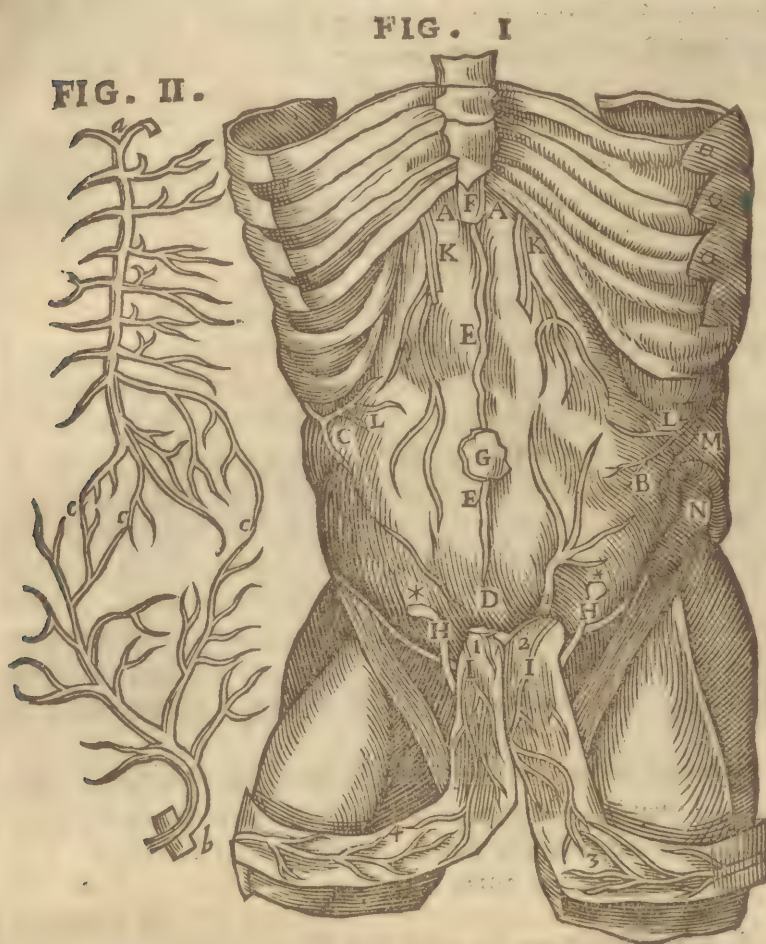
Although to this excretion of the excrements, it is not sufficient that the Epigastricke, Midriffe and intercostall Muscles presse the belly, but the Muscles of the throtle must be also shut. For the mouth being open the excrements never goe well forth; because the vapours that passe out of the

Why when the mouth is open the excrements go more slowly forth,

Why when the mouth is open the excrements go more slowly forth.

mouth, which being restrained and driven to the Midriff, by stretching it powerfully thrusts downe the excrement. Wherefore Apothecaries when they give glisters, bid the Patient to open his mouth, that the glisters may easly goe up, which otherwise would scarcely go up, the mouth being shut, because so we should have no place empty in us, into which the glyster might be admitted.

The first Figure of the Lower belly.



- AABCD. The upper, lower and laterall parts of the *Peritonæum*.
 EE. The white Line, from the Gristle of the Breast-bone, called the Brest-blade, to the Commis-sure or meeting of the Share-bones,
 F. The Gristle of the Breast-bone *Cartilago ensi-formis* or the Breast-Blade.
 G. The Navill which, all the Muscles being taken away, must be kept for the demonstration of the Umbilicall Vessels,
 H H. The productions of the *Peritonæum* which contain the Seminarie Vessels on either side.
 *. The hole which giveth way to the Seminarie Vessels of Men.
 II. A Veine and an Arterie from the *Epigastricke*, which being carried upward under the right Muscles, doe here hang down, and are distributed into the lower part of the *Abdomen*.
 KK. A Veine and an Arterie from the internall *Mammariæ* proceeding from under the Bone of the Breast, are carried downward thorough the right Muscles and are disseminated into the upper part of the *Abdomen*.
 1, 2. The place wherein the right Muscles arise, which being here cut off, do hang down, that their Vessels may the better be scene.
 3, 4. The *Anastomosis* or inoculation of the foresaid Vessels, making the consent of the *Abdomen* and the Nose, & of the Wombe with the Breasts, as some think.
 LL. Branches of Veines running into the sides of the *Peritonæum*.
 N. The place of the Haunch Bone bared, to which the Oblique and the Transverse Muscles doe grow.

Of the whiteline, and *Peritonæum* or Rim of the belly.

What the whiteline is

What the *Peritonæum* is.

The substance and quantity.

The white line is nothing els, than the bound and extremities of the Muscles of the *Epigastrium* distinguishing the belly in the middest into two parts, the right and left. It is called white, both of its owne colour, and also for that no fleshy part lyes vnder it, or is placed above it. It is broader above the navill, but narrower below, because the right muscles doe there grow into one, Now we must treat of the Coat or membrane, *Peritonæum* or Rim of the belly; it is so called, because it is stretched over all the lower belly, and particularly over all the parts contained in the ventricle, to which also it freely lends a common coat. It hath a spermaticke substance as all other membranes have; the quantity of it in thicknes is very small, (for it is almost as thin as a spiders web) yet differing in divers places in men, and women; for men have it more thick and strong about the Navil, that so it may containe the extension of the stomacke, often stretched beyond measure with meat and drinke. On the contrary women have it so thick and strong below their navell that it seemes double, that so they may more easily endure the distention of their wombe caused by the child contained in it. But above the navell men and women have the *Peritonæum* of an equall strength, for the selfe same reason. The longitude and latitude of it is knowne by the circumscription of the belly.

The figure is round and some what long; it puts forth some productions, like finger stalles, both for the leading and strengthening the spermaticke vessels and the *Cremaster* muscles of the Testicles, and besides it the ejaculatory vessels, as also to impart a coat to the testicles and all the naturall parts.

The figure.

It is composed of slender, membranous and nervous fibers, certaine smalle branches of veines and arteries concurring with them, which it receiues for life and nourishment from the adherent parts.

The composition.

This membrane is one in number, and besides every where one and equall, although *Galen* would haue it perforated in that place where the spermaticke vessels descend to the Testicles; But in truth we must not thinke that a hole; but rather a production as we said before.

The number.

Lib. de sem.

The latter Anatomists haue observed, the Coate *Peritoneum* is doubled below the Navell, and that by the spaces of these reduplications the vmbilicall arteries ascend to the Navell.

It is situate nere the naturall parts and compasses them about, and joined by the coat; which it giues them, as also on the sides, it is ioyned to the *vertebra's* of the loines, from whose ligaments, (or rather periostium) it takes the originall: on the lower part it cleaves to the share bone, and on the upper to the midriffe whose lower parte it wholly invests; on the fore or outer parte it stickes so close to the transverse muscles, that it cannot bee pluckt from them but by force; by reason of the complication and adhesion of the fibers thereof with the fibers of the proper membrane of these muscles, which membrane in *Galen's* opinion proceeds from this *Peritoneum*, that so it is no marvaile that we may more easily breake, than separate these two coats. It is of temperature cold and dry, as all other membranes are.

The site and connexion.

It hath many uses, the first whercof is, to invest and cover all the parts of the lower belly, specially the kall, least it should be squeezed by great compressures and violent attempts into the empty spaces of the muscles, as it sometimes happens in the wounds of the *Epigastrium*, unles the lips of the ulcer bee very well united: for then appears a tumor about the wound by the Guts and kall thrusting without the *Peritoneum* into those spaces of the muscles; from whence proceeds cruell paine.

Lib. 6. Met.

Vie.

Another vse is to further the casting forth of the excrements by pressing the ventricle and gutson the foreside, as the Midriffe doth above, as one should doe it by both their hands joyned together.

The third use is, it prohibits the repletion of the parts with flatulency after the expulsion of the excrements, by straitening and pressing them downe.

The fourth and last is, that it contains all the parts in their seat and bindes them to the backe-bone, principally that they should not flye out of their places by violent motions, as leaping and falling from on high.

Lastly wee must know, that the Rim is of that nature that it will easily dilate it selfe, as wee see in Dropsies, in women with child, and in tumors against nature.

CHAP. XIII.

Of the Epiploon, Omentum, or Zirbus, that is the Kall.

After the containing parts, follow the contained, the first of which is the *Epiploon*, (or Kall) so called, because it as it were swims upon all the guts.

The substance, magnitude, figure.

The substance of it is fatty and spermaticke, the quantity of it for thickness is diverse in diverse men according to their temperament. The latitude of it is described by the quantity of the guts. It is in figure like a Purse, because it is double. It is composed of veines, arteries, fat and a membrane, which sliding downe from the gibbous part of the ventricle, and the flat part of the Gut *Duodenum* and spleen over the Guts, is turned backe from the lower belly to the top of the Colon. It is one as wee said covering the Guts. It hath its cheefe connexion

The composition.

The connexion,

Lib. Anatom.
administ.

The temper.

The use two-
fold,

Lib. q. de usu
partium.

A cause of
frustrating
conception.

nexion with the first *Vertebra's* of the loines, from which place in beasts it seemes to take a coate, as in men from the hollow part of the spleene and gibbous of the ventricle and depressed part of the *Duodenum*, from whence doubled it is terminated in the fore and higher part of the Collicke gut. Which moved *Galen* to write that the upper part of the membrane of the Kall was annexed to the ventricle, but the lower, to the laxer part of the Collicke Gut. From the vessells of which parts it borrowes his, as also the nerves, if it have any. The temper of it in leane bodyes is cold and dry, because their Kall is without fat; but in fat bodyes it is cold and moiste by reason of the fat. The use of it is two-fold: The first is to heat and moisten the Guts, and help their concoction, although it doe it by accident, as that which through the density of the fatte hinders the cold aire from piercing in, and also forbiddes the dissipation of the internal heat. Another use is, that in want of nourishment in times of great famine, for sometimes it cherishes, and as it were by its dew preserves the innate heate both of the ventricle and the neighbouring parts, as it is written by *Galen*. Moreover wee must observe, that in a rupture or relaxation of the *Peritonaeum* the Kall falls downe into the *scrotum*, from whence comes that rupture wee call, *Epiptocoele*. But in weomen that are somewhat more fat it thrusts it selfe betweene the bladder and the necke of the wombe, and by its compression hinders, that the seed comes not with full force into the wombe, and so frustrates the conception. Besides, when by a wound or some other chance, any part of it be defective, then that part of the belly which answers to it, will afterwards remaine cold and raw, by reason of the forementioned causes.

The second figure of the lower belly.



A, A, B, B. The inner face of the *Peritonaeum* cut into foure parts, and so turned backward.

B. The upper B sheweth the implantation of the *Umbilical Veine* into the Liver.

C. The Navell separated from the *Peritonaeum*.

From D to the upper B. the *Umbilical Veine*.

E, E. The fore part of the stomach blowne up, neither covered by the liver nor the Kall.

F, F. A part of the *Gibbous* side of the Liver.

G. Vessels disseminated thorow the *Peritonaeum*.

* The Brest-blade.

H. The bottome of the Bladder of Vrine.

I. The connexion of the *Peritonaeum* to the bottome of the Bladder.

K, K, K, K. The Kall covering the Guts.

M, N. Vessels and Sinneues embracing the bottome of the

Stomacke. O. The meeting of the Vessels of both sides, so that M, N, and O, shew the seame which *Aristotle* mentions 3. *hist.* and 4. *de part. Anim.* where he saith; that the Kall arises and proceeds from the midst of the belly. P, P. Branches of vessels running alongst the bottom of the stomach. Q, Q, Q, Q. Certain branches of the Vessels distributed to the upper membrane of the *Omentum*, & compassed with Fat. a, a. The two *Umbilical* arteries, going down by the sides of the bladder to a branch of the great arterie. b. The Ligament of the Bladder which is shewed for the *Prækus*.

CHAP.

CHAP. XIII.

Of the Ventricle or Stomacke.

Now we must speake of the Stomacke, the receptacle of the food necessarie for the whole body, the seate of appetite, by reason of the nerves disperfed into its upper orifice, and so into its whole substance. The substance thereof is rather spermatike than sanguine, because that for one fleshie membrane, it hath two nervous; The quantitie or magnitude of the ventricle is diverse, according to the various magnitude of bodies, and gluttony of men. The figure of it is round and somewhat long, like a Bagpipe. The stomacke is composed of two proper coates, and one common from the *Peritoneum*, together with veines, sinewes, and arteries; the innermost of its proper coates is membranous woven with right fibers, for the attraction of meates, it is extended and propagated even to the mouth thereof, whereby it comes to passe that the affections of one part may easily be communicated to the other by sympathy, or consent. This coate hath its originall from the membranes of the braine which accompany the nerves descending from the third and fourth conjugation to the mouth thereof. And in like sort from other productions descending by the passages of the head, from whence also another reason may be drawne from that, which they commonly bring from the nerves of the sixth conjugation; why in wounds of the head, the stomacke doth so soone suffer by consent with the braine. The exterior, or outer is more fleshie and thicke, woven with oblique fibers, to retaine and expell. It drawes it originall from the *Pericranium*, which as soone as it comes to the gullet, takes unto it certaine fleshie fibers. There be nerves sent into the stomacke from the sixth conjugation of the braine, as it shall be shewed in its proper place. Veines and arteries are spread into it from the *Gastrica*, the *Gastrepiploides*, the *Coronaria* and splenicke, from the second, third, and fourth distribution of the *vena Porta*, or gate-veine; and the third of the descendend artery to the naturall parts, as soone as it passes forth of the midriffe.

What the ventricle is.

The substance

The magnitude.

The figure.
The composition.

The cause of the consent of the mouth and stomacke.

It is one in number. The greater part of it is situated on the left side betweene the spleene, the hollownesse of the liver, and the guts, that assisted by the heate of such neighbouring parts, it may more cheerefully performe the concoction of the meate. Neither am I ignorant that *Galen* hath written, that a great part of the stomacke lies on the left side. But inspection it selfe, and reason makes me derogate from *Galen's* authority, for because there is more emptie space on the left side, by reason the spleene is lesse than the liver, it was fit it should lie more on the left side. The more proper connexion of it is with the gullet and guts, by its two orifices; with the braine by its nerves; with the liver and spleene by its veines; with the heart by its arteries; and with all the naturall parts by its common membrane.

The number.

Lib. 4. de usu partium.

The connexion.

The temper of the ventricle in men of good habite, is temperate, because it is almost composed of the equall commixture of sanguine and spermatike parts; or according to *Galen's* opinion, it is cold of its selfe, and by the parts composing it; and hot by the vicinitie of the bowels. But in some it is hotter, in others colder, according to the diverse temper and complexion of diverse bodies. That stomacke is to bee thought well tempered, that powerfully drawes downe the meate and drinke, and embraces and retaines them so drawne, untill by concoction and elixation, they shall be turned into a juyce like creame (which the Greekes call *Chylos*;) and lastly, which doth strongly send from it, and repell the excrements of this first concoction.

The temper.

Lib. 9. Meth.

The stomacke is knowne to be hotter by this, that it better concocts and digests course and hard meates, as beefe, hard egges, and the like, than soft meates easie of digestion, which it corrupts and turnes into belchings. For so a young chicken, is sooner burnt than well roasted at a great fire. The stomacke which is colder, desires much meate, but is slow in concocting them, especially if they be cold and hard of digestion, which for that cause quickly turne sowre. The action of a well conditioned stomacke, is twofold, one common, another proper. The common is to attenuate mixe and digest the meates taken in at the mouth, for the nutrition of it selfe and

Notes of a hot stomacke.

The action twofold.

and the whole body, after the liver hath performed its dutie, which before it be done, the ventricle onely enjoys the sweet pleasure of the *Chylus*, and comforts its selfe against the heate and impuritie of the adjacent parts, wherefore it is called the worke-house of concoction. Its first action is to attract, retaine, and assimilate to it selfe that which is convenient; but to expell whatsoever shall be contrary, either in quantitie, or qualitie, or in the whole substance.

The two orifices of the stomacke.

It hath two orifices, one above, which they commonly call the stomacke and heart, the other lower, which is called the *Pylorus*, or lower mouth of the stomacke. The upper bends to the left side neere the backe bone; it is farre more large and capacious than the lower, that so it may more commodiously receive meates halfe chewed, hard and grosse, which Gluttons cast downe with great greedinesse; it hath an exquisite sense of feeling, because it is the seate of the appetite, by reason of the nerves incompassing this orifice, with their mutuall embracings; whereby it happens that the ventricle in that part is endued with a quicke sense, that perceiving the want and emptinesse of meate, it may stirre up the creature to seeke foode. For albeit nature hath bestowed foure faculties on other parts, yet they are not sensible of their wants, but are onely nourished by the continuall sucking of the veines, as plants by juice drawne from the earth.

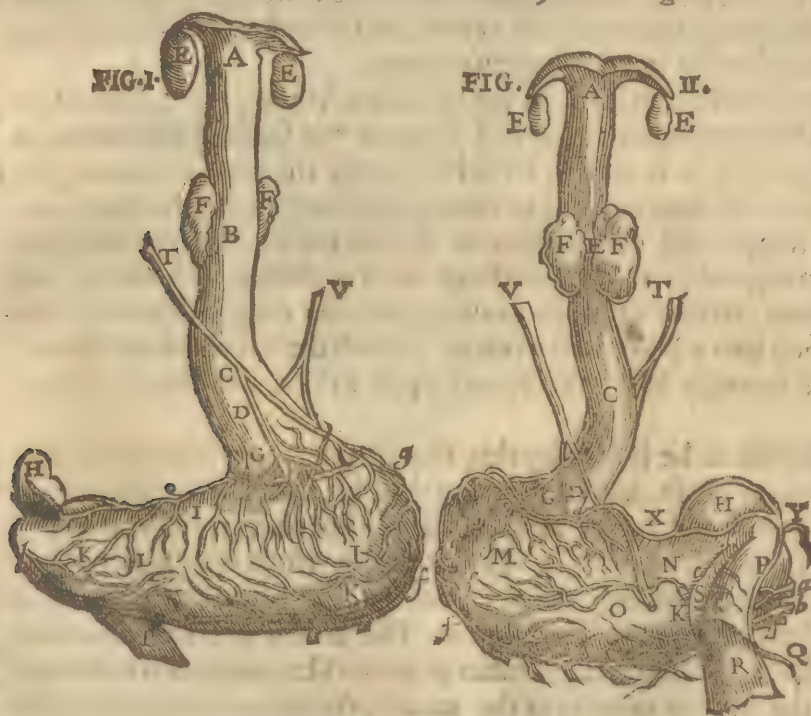
The site.

This orifice is seated at the fifth *Vertebra* of the chest, upon which they say it almost rests. Yet I had rather say that it lies upon the twelfth *Vertebra* of the chest, and the first of the loines; for in this place the gullet perforates the midriffe, and makes this upper orifice. The lower orifice bends rather to the right side of the body, under the cavitie of the liver. It is farre straiter than the upper, lest any thing should passe away before it bee well attenuated and concocted; and it doth that by the helpe or assistance of, as it were a certaine ring, like to the sphincter muscle of the fundament, which some have thought a glandule made by the transposition of the inner and fleshie membrane of the ventricle into that which is the outer of the guts. I know *Columbus* laughs at this glandulous ring, but any one that lookes more attentively shall perceive that the *Pylorus* is glandulous. The stomacke in its lower and inner side, hath many folds and wrinkles, which serve to hold and containe the meates, untill they be perfectly concocted. In the ventricle wee observe parts gibbous and hollow; the hollow is next to the liver and midriffe; the gibbous is towards the guts. Now we must note, that the ventricle when it is much resolved or loosed, may slide downe even to the navell neare the bladder, the which wee have observed in some bodies dissected after their death.

The glandulous ring of the *Pylorus*.

The falling downe of the stomacke.

The third and fourth Figure.



The first figure shewes the fore-side of the stomacke and gullet.

A. sheweth the orifice of the gullet cut fro the throate.

B. the straight and direct course of the gullet from A. to B.

C. how the gullet above the first racke bone of the chest, from B. to C. inclineth to the right hand.

D. his inclination to the left hand, from C. to D.

EE. the two glandules called the Almonds


monds, set close to the gullet in the end of the throate, called also *Paristmia*, *Antiadetes*, *Tonsilla* and *Salviares glandula*. FF. Another glandulous body in the midst of the gullet, about the fifth racke bone, from which place the gullet gives place to the great arterie, somewhat declining to the right side: *Vesalius*, *Lib. 5, Cap. 3.* and *Columbus Cap. ult. lib. 9.* write, that those Glandules are filled with a certaine moisture, with which the gullet is moistened, that the meates may slide downe more easily into the stomacke, as through a slippery passage. No otherwise than the *Glandula prostatica*, filled with a kind of grosse and oily moisture, smooth the passage of the urine, that so it may flow through it, with a more free and lesse troubled course. G. the connexion of the gullet with the stomack, where the upper orifice of the stomack is fashioned. H. the lower orifice of the stomacke called *Pylorus*. I. K. the upper part of the stomacke at I. the lower at K. LL. the foreside of the stomacke. P. the gut called *Duodenum*. T. V. the right and left nerves of the sixth paire encompassing about the gullet and the uppermost left orifice of the stomacke.

The second Figure sheweth the backe parts of the Ventricle and Gullet.

A. EE. FF. G. H. P. TV. shew the like parts as in the former. From C. to D. the inclination of the stomacke to the left hand. M. N. O. the backside of the stomacke. M. sheweth the prominence of the left side. N. of the right. O sheweth the docke or impression, where it resteth upon the racke bones. Q. R. the passage of the bladder of the gall into the *Duodenum* at R. S, a glandulous body growing under the *Duodenum*, bearing up the vessels. X. Y. a nerve on the left side creeping up to the top of the stomacke, and so running out to the liver.

CHAP. XV.

Of the Guts.

 He Guts the instruments of distribution and expulsion, are of the same substance and composure with the stomacke, but that the site of the coates of the stomacke is contrarie to those of the guts. For that which is the innermost coate of the stomacke is the outermost of the guts, and so on the contrary. The figure of the guts is round, hollow and capacious, some more, some lesse according to the diverse bignesse.

But for the quantitie of the guts, some are small, some great, more or lesse, according to the varietie of bodies. But they are fixe in number, for there be three small; the *Duodenum*, the *Iejunum*, or empty gut, and the *Ilium*. Three great, the Blind, the Collicke, and the Right gut. All which have had their names for the following reasons; the first, because it is extended the length of twelve fingers, like another stomacke, without any turning, or winding; of which greatnesse it is found in great bodied men, such as were more frequently to be met withall in *Galens* time, than in this time of ours, in which this gut is found no longer than seven, eight, or nine fingers at the most. The cause of this length is, that there may be a free passage to the gate veine, comming out of the liver, as also to the artery and nerve which runne into it. For seeing that this gut may sometimes rise to the top of the liver, it would possesse the space under the bladder of the gall (with which it is often tintured) if it had any revolutions that way, which is the passage for such like vessels. Others give another reason of this figure, which is, that there should bee nothing to hinder the easie and fit distribution of the perfectly concocted *Chylus* to the liver.

The second is called *Iejunum*, or the empty gut, not because it is absolutely so, but because it containes little in comparison of the other. There is a triple cause of this emptines, the first the multitude of the meseraick veines and arteryes which are about it, whereupon there is a greater and quicker distribution of the *Chylus*. The second is the vicinity or neighbourhood of the liver strongly drawing the *Chylus* contained in it; the third is the flowing downe of the cholericke humor from the bladder of

of the Gall into it, which ever and anon by its acrimony cleanses away the filth, and by continuall flowing sollicites it to expulsion. The third is called *Ileon* because it lyes betweene the *Ilia* or flanks, it differs nothing from the rest in substance and magnitude, but in this one thing, that there is more matter contained in it than in the rest, by reason of the paucity of the vessels terminated in it, that it is no marvell that there can be no exact demonstration made of them. The fourth is called *Cacum* or the Blind, because it hath but one passage to send out and receive in the matter. This gut hath a long and strait production, which according to the opinion of some (though altogether erroneous) often falls downe into the *Scrotum* in the rupture, or relaxation of the Rim of the Belly; for that production in the lower belly strongly stickes to the *Peritoneum* or Rim, which hinders such falling downe. But *Galen* seemes by such a blind gut to have meant this long and narrow production, and certainly so thinkes the common sort of Anatomists, but here *Vesalius* justly reprehended *Galen*. Wherefore *Sylvius* that he might free *Galen* of this fault, would haue us by the blind gut to understand the beginning of the collicke gut. The fift is called *Colon* (or collicke gut) because it is greater and more capacious than the rest. The sixt and last, the Right gut, by reason of the rightnes or straightnes of the passage. This in beasts especially, hath a certaine fatnesse in it to make the passage slippery, and lest the gut should be exulcerated in the passage, by the sharpenesse of hard and acrid excrements.

The site of these guts is thus, The *Duodenum* upon the backebone bends to the right hand; the *Ieiunum* possesses a great part of the upper umbilicall region, diffuses it selfe into both sides with windings, like to these of the gut *Ileon*, even to the flanks. The gut *Ileon* is situate at the lower part of the umbilicall region, going with many turnings and windings, even to the hollownes of the holy-bone above the bladder and side parts of the *Hypogastrium*, which they call the flanks.

The Blind bends to the right hand, a little below the kidney, above the first and fourth *Vertebra* of the loines. The Colon or Collicke gut is crooked and bent, in the forme of a Scythian bow, filling all the space from the blind gut, below the right kidney, even to the hollownes of the liver, and then it goes by the gibbous part of the stomacke above the small guts, even to the hollownesse of the spleene; from whence sliding under the left kidney, with some turnings, it is terminated upon the *Vertebra's* of the loines.

The distinction
on betweene
the collicke
and the stone
in the kidneys.
Their con-
nexion,

By all which turnings and windings of the collicke gut, it is easie to distinguish the paine of the stone of the kidneys, which remaines fixt in one certaine place, from the collicke wandring through these crooked passages we mentioned. The right gut tends with an oblique site towards the left hand, upon the holy bone even to the very fundament. They have all one and a common connexion, for they are all mutually joined together by their coats, because there is but one way from the gullet even to the fundament, but they are joynd to the principall parts by their nerves, veines, and arteries.

But a more proper connexion is that, where the *Duodenum* on the upper part of it, is joynd with the *Pylorus*; but on the lower part, to the *Ieiunum*, and the parts lying under it, by the coate of the *Peritoneum*. The *Ieiunum*, or emptie gut, is joynd to the *Duodenum* and *Ileon*. The *Ileon* with the emprie and blind guts. The blind with the *Ileon* and *Colon*, and with the right side of the backebone where it is tied more straitly. The *Colon* with the blind and right guts, and in his middle part, with the kidneys and the gibbous part of the stomacke; whereby it comes to passe, that being distended with wind in the collicke, it overturnes and presses the stomacke, and so causes vomiting.

Why vomiting
happens in the
collicke.

The *Sphincter*
muscles of the
fundament.

*Gal. lib. 5. de
usurpationum.
cap. 14.*

Lastly, the right gut is annexed with the collicke gut and fundament. At the end whereof there is a muscle fastened, of figure round and circular called the *Sphincter*, arising from the lower *Vertebra's* of the holy bone and rump, by the benefit of which as of a dore or gate, the excrements are restrained at our will, lest man borne for all honest actions, without all shame, in every time and place, should be forced every where to ease his belly. For such as have lost the benefit of this muscle by the palsy, have their excrements goe from them against their wills. There is a body situate at

at the end of the right gut, of a middle substance betweene the skinned and flesh, as it were arising from the mixture of them both, like the extremities of the lippes, of the same use with the *Sphincter*, but that it is not altogether so powerfull. But there are also certaine veines situate about it called the *Hæmorrhoidall*, of which we will speake in their place.

Besides, there are two other muscles that descend to the end of this gut, being broad and membranous on each side, one arising from the side and inner parts of the share and hippe-bones, which inserted above the *Sphincter* pull up the fundament falling downe, wherefore they are called *Levatores Ani*, or the lifters up of the fundament. Wherefore when as either they are too weake, or resolved, or the fundament oppressed with the weight of flegmaticke, salt, chollericke and sharpe humors, the gut is scarce restored into its place, that there is neede of the helpe of the fingers for that purpose.

The guts follow the temper of the stomacke. Their action is the distribution of the *Chylus* by the meieraicke veines (which of dutie belongs to the three small guts) and the receiving the excrements of the *Chylus*, and retention of them, till a fit time of expulsion, which belongs to the third quarter. Besides, these small guts finish up the worke of concoction, begun in the stomacke, although they be not altogether made for that use. But nature is often accustomed to abuse the parts of the body for some better use.

The fifth figure of the lower belly.



A. The brest blade, *Cartilago Ensisformis*.

BB. The Rim, with the midriffe and broken ribs bent outwards.

CC. the gibbous part of the liver.

D. a ligament tying the liver to the midriffe.

E. part of the umbilicall veine.

FF. the stomacke filld full of meate.

G. a part of the spleene.

H. the blind gut of the late writers, for the Ancients tooke the toppe of the colon for it.

I. the beginning of the great or thicke guts.

I. and so to K. sheweth the passages of the collicke gut from the right kidney to the liver. And so the collicke and the stone on this side are in one place, and therefore hardly distinguished.

K. to L. the same collicke gut lieth under the whole bottome of the stomacke, which is the reason that those which are troubled with the collicke cast so much.

L. to M. The passage of the Colon

from the spleene to the share bone, by the left kidney, a way, which maketh the paine of the stone and the Collick on the left side very hard to distinguish. N. The Colon ending in the right gut. O. The beginning of the right gut unto the bladder. P. Q. The sunken or fallen side of the Colon at P. and his Chambers or Cells at Q. R. S. T. The lesser guts, especially lying under the Navil. a. a. The two umbilicall arteryes. b. The bottome of the bladder. * The connexion of the bladder and the Perito-

But

Their fibers.

But we must note, that for the compofure of the guts, they have onely tranfverfe fibers, for expulfions fake, unleffe that at the beginning of the *Colon*, and the end of the right gut, you may fee certaine right fibers added to the tranfverfe to ftrengthen them, leff thefe guts fhould chance to be broken and torne by the paffage of hard excrements, and the laborious endeavour of expulfion (fpecially in brute beafts.)

How the guts become fit to retaining.

But if any afke, how they have retention, being they want oblique fibers, he may know that the *feces* are retained in the right gut, by the force of the *Sphincter* mufcle, but oft times in the blind, by their hardneffe and abundance, whereby they fticke in the paffage; but in the reft, by reafon of their conformation into many windings and turnings.

Their length.

The length of the guts, is feven times more than the length of the whole body; to this length they have windings, leaft the nourifhment fhould quickly flide away, and leaft men fhould bee withdrawne by gluttony from action and contemplation. For fo wee fee it comes to paffe in moft beafts, which have one Gut, ftretched ftraight out from the ftomacke to the fundament; as in the *Lynx* and fuch other beafts of infatiable gluttony, alwayes, like plants, regarding their food.

CHAP. XVI.

Of the Mefentery.

The Substance
magnitude.

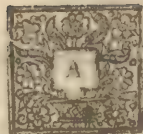


Figure.
Composure.

Frer the Guts follows the Mefentery, being partly of a fatty and partly of a fpermatricke fubftance. The greatneffe of it is apparent enough, although in fome it be bigger, and in fome leffer according to the greatneffe of the body. It is of a round figure and not very thicke. It is compofed of a double coate arifing from the beginning and roote of the *peritoneum*. In the midft thereof it admits nerves from the *Coftall* of the fixt conjugation, veines from the *Vena Porta* or Gate veine; Arteries from the descendant artery, over and befides a great quantity of fat and many glandulous bodyes, to prop vp the divifion of the veffels fpred over it, as alfo to moiften their fubftance. It is in number one, fcituate in the middle of the guts, from whence it tooke its name. Yet fome divide it into two parts, to wit, into the *Meferaum*, that is, the portion interwoven with the fmall guts, and into the *Mefocolon* which is joined with the Great. It hath connexion by its veffels with the principall parts, by its whole fubftance with the guts, and in fome fort with the kidneies, from whole region it feemes to take its coats.

Number.

The connexion.

The temper.

It is of a cold and moift temper, if you have refpect to his fatty fubftance; but if to the reft of the parts, cold and drye.

The action
and ufe.

The action and ufe of it is, to bind and hold together the guts, each in his place, leaft they fhould rafhly be folded together; and by the Meferaicke veines (which they terme the hands of the Liver) carry the *Chylus* to the liver.

All the meferaicke
veines come from the
liver.

In which you must note, that all the Meferaicke veines come from the liver, as we underftand by the diffection of bodyes; although fome have affirmed, that there bee fome veines ferving for the nourifhment of the guts, no wayes appertaining to the Liver, but which end in certaine Glandulous bodyes, difperfed through the Mefentery, of whole ufe we will treat hereafter.

CHAP. XVII.

Of the Glandules in generall, and of the Pancreas, or sweet bread.

Substance of
the glandules.



Quantitie and
figure.

Glandule is a fimple part of the body, fometimes of a fpongye and foft fubftance, fometimes of a dense and hard. Of the foft Glandules are the *Tonfilla*, or Almonds, like in fubftance to blanched Almonds; the *Thymus*, *Pancreas*, *Testicles*, *Proftata*. But the dense and hard are the *Parotides* and other like. The Glandules differ amongst themfelves in quantity and figure, for fome are greater than other fome, and fome are round and others plaine, as the *Thymus* and *Pancreas*. Others

Others are compounded of veines, nerves, arteries, and their proper flesh, as the Almonds of the eares, the milkie glandules in the breasts and the testicles. Others want nerves, at least which may be seene, as the *Parotides*, the axillarie, or those under the armeholes and others. The number of glandules is uncertaine, by reason of the infinite multitude and variety of sporting nature. You shall finde them alwayes in these places, where the great divisions of vessels are made; as in the middle ventricule of the braine, in the upper part of the Chest, in the Mesentery and other lik places.

Although other some be seated in such places, as nature thinkes needfull to generate and cast forth of them a profitable humor to the creature; as the almonds at the roots of the tongue, the kernells in the dugs, the spermatick vessels in the *scrotum* and at the sides of the wombe; or where nature hath decreed to make emunctories for the principall parts, as behind the eares, under the armeholes, and in the groines. The connexion of glandules is not only with the vessels of the parts concurring to their composition, but also with those, whose division they keep and preserve. They are of a cold temper, wherefore Physicians say the blood *retrudescere*, (i) to become raw againe in the dugs, when it takes upon it the forme of milke. But of these some have action, as the almonds, which poure our spattle usefull for the whole mouth, the dugs milke, the Testicles seed; others, use onely as those which are made to preserve, vnderprop and fill vp the divisions of the vessels. Beside this we have spoken of glandules in generall, we must know that the *Pancreas* is a glandulous and flesh-like body, as that which hath every where the shape and resemblance of flesh. It is situate at the flat end of the liver, under the *Duodenum* with which it hath great connexion, and under the gate-veine, to serve as a bulwarke, both to it and the divisions thereof, whilst it fills up the emptie spaces, betweene the vessels themselves, and so hinders, that they be not pluckt asunder, nor hurt by any violent motion, as a fall, or the like.

Composition.

Number.

Connexion.

Temper.

Action and use.

The substance of the *Pancreas*.

The size.

CHAP. XVIII.

Of the Liver.

Having gone thus farre, order of dissection now requires, that we should treat of the distribution of the gate veine; but because it cannot well be understood unlesse all the nature of the liver from whence it arises, be well knowne, therefore putting it off to a more fit place, we will now speake of the Liver. Wherefore the liver (according to *Galens* opinion, *lib. de form. fetus*) is the first of all the parts of the body, which is finished in conformation, it is the shoppe and Author of the bloud, and the originall of the veines; the substance of it, is like the concrete mudde of the bloud, the quantitie of it is diverse, not onely in bodies of different, but also of the same species; as in men amongst themselves, of whom one will bee gluttonous and fearefull, another bold, and temperate, or sober; for hee shall have a greater liver than this, because it must receive and concoct a greater quantitie of *Chylus*: yet the liver is great in all men, because they have need of a great quantitie of bloud for the repairing of so many spirits & the substantifick moisture, which are resolved and dissipated in every moment by action and contemplation. But there may bee a twofold reason given, why such as are fearefull have a larger liver. The first, is because in those the vitall facultie (in which the heate of courage and anger resides) which is in the heart, is weake; and therefore the defect of it must be supplied by the strength of the naturall facultie. For thus nature is accustomed to recompence that which is wanting in one part, by the increase and accession of another. The other reason is, because cold men have a great appetite, for by *Galens* opinion *In arte parva*, coldnesse increases the appetite; by which it comes to passe that they have a greater quantitie of *Chylus*, by which plenty the liver is nourished, and growes larger. Some beasts, as Dogges, and swine, have the liver divided into five or more Lobes, but a man hath but one Lobe, or two, or three at the most; and these not so much distinguished, as which chearish the upper and hollow region of the ventricule, with embracing to helpe forward the worke of concoction. Therefore the liver is almost content with one Lobe, although it is alwayes rent with a small division, that the umbilicall veine pearcing into the roots and substance of it, may have a free passage; but also oftentimes there is as it were a certaine small lobe of the liver, laid under the umbilicall veine, as a cushion.

What the liver is.

Its substance and quantity.

Why cowardes have great livers.

L

The

The figure.

The figure of the liver is gibbous; rising up and smooth towards the Midriff, towards the stomacke is the *sinuous* or hollow side of it somewhat unequall, and rough by reason of the distance of the Lobes, the originall of the hollow veine, and the site of the bladder of the Gall.

The composition.
The vessels.

The composition of the liver is of veines, nerves, arteryes, the coate and proper substance thereof which we call the grosse and concreet blood, or *Parenchyma*. Veines and arteryes come to it from the navell; but nerves immediatly from these which are diffused over the stomack according to *Hippocrates*; yet they penetrate not very deep into its substance, for it seemes not to stand in neede of such exact sense, but they are distributed upon the coate and surface thereof, because this part made for distribution over the whole body, keepe to it selfe no acrid or maligne humor, for the perception of which it should neede a nerve, although the coate investing it, sends many nervous fibers into its substance, as is apparent by the taking away of the coate from a boiled liver; we must thinke the same of the other entrals. The coate of the liver is from the *Peritoneum*, waxing small from the umbilicall veine, when it divides it selfe for the generation of the gate and hollow veines, as is observed by *Galen*, *lib. de format.*

The number and site.
The connexion.

Fetus. The liver is onely one, situate in the greater part on the right side, but with the lesser part on the left, quite contrary to the stomacke. Its chiefe connexion is with the stomacke, and guts, by the veines and membranes of the *Peritoneum*; by the howllow veine and artery, with the heart; by the nerve with the braine, and by the

The temper.

same ligatures with all the parts of the whole body. It is of a hot and moist temper, and such as have it more hot, have large veines and hot blood; but such as have it cold,

The action.

have small veines, and a discoloured hew. The Action of the Liver is the conversion of the *Chylus* into blood, the worke of the second concoction. For although the *Chylus* entring into the meseraicke veines, receive some resemblance of blood, yet it acquires not the forme and perfection of blood, before it be elaborate,

The ligaments

and fully concoct in the liver. It is bound and tied with three strong ligaments, two on the sides in the midst of the bastard ribs, to beare up its sides, and the third more high and strong, descending from the breast-blade, to sustaine its proper part, which with its weight would presse the lower orifice of the stomacke, and so cause a falling or drawing downe of the sternon and collar bone. And thus much may suffice for its proper ligaments, for we before mentioned its common, the veines, arteries, nerves, and coate of the *Peritoneum*, by which it is knit to the loines, and other naturall parts. But wee must note, that besides these three proper ligaments, the liver is also bound with others to the bastard ribs, as *Sylvius* observes in his Anatomieall observations, and *Hollerius* in his *Practise*, *Cap. de Pleuritide*.

CHAP. XIX.

Of the bladder of the Gall.

The substance, greatness, and figure thereof.
The composition.

Now wee must come to the bladder of the Gall, which is of a nervous substance, and of the bignesse of a small peare; it is of figure round, with the bottome more large, but the sides and mouth more narrow and strait. It is composed of a double coate, one proper, consisting of three sorts of fibers, the other from the *peritoneum*. It hath a veine from the *Porta* or gate veine, and an artery from that which is diffused into the liver, and a nerve from the sixth conjugation. It is but one and that hid on the right side under the greater lobe of the liver, it is knit with the touching of its own body, and of the passages and channels made for the performance of its actions with the liver, and in like manner with the *Duodenum*, and not seldome with the stomack also, by another passage; & to conclude to all the parts by its veines, nerves, arteries, and common coate. It is of a cold temper, as every nervous part is.

Temper.

Action.

The action of it is to separate from the liver the cholericke humor, and that excrementitious, but yet naturall by the helpe of the right fibers, for the purifying of the blood, and by the oblique fibers, so long to keepe it being drawne, untill it begin to become troublesome in quantitie, qualitie, or its whole substance, and then by the transverse fibers, to put it downe into the *Duodenum* to provoke the expulsive facultie of the guts. I know *Fallopins* denies the texture of so many fibers, to be the minister of such action to the gall. But *Vesalins* seemes sufficiently to have answered him

him. The bladder of the gall hath divers channels, for comming with a narrow necke, even to the beginning of the gate veine, it is divided into two passages, the one whereof suffering no division is carried into the *Duodenum*, vnlesse that in some it send another branch into the bottome of the stomack, as is observed by *Galen*; which men have a miserable and wretched life, being subject to cholericke vomitings, especially when their stomackes are empty, with great paines of their stomacke and head, as is also observed by *Galen Cap. 74. Artis Med.* The other comming out of the body of the liver devides it selfe into two or three passages, againe entering the substance of the liver, is divided with infinite branches, accompanying so many branches of the gate veine through the substance of the liver, that so the blood vnlesse it be most elaborate and pure, may not rise into the hollow veine, all which things Dissection doth manifestly teach.

The channels
of the gall,

Lib. 2. de temp.
per.

The sixth Figure of the bladder of the Gall.



M. The Pylorus joyned to the *Duodenum*.

N. the *Duodenum* joyned to the Pylorus
P. shewes the bottome of the bladder of the gall.

Q. the holes of the bladder of gall disperfed through the liver, betwixt the rootes of the hollow and gate veines. R. the roote of the gate veine in the liver. S. the roote of the hollow veine in the liver.

a. the concurrence or meeting of the passages of choller into one branch. b. the necke of the bladder into which the passage is inserted. c. the passage of the gall into the *Duodenum*. d. the *Duodenum* opened, to manifest the insertion of the *porus biliaris*. e. an arterie going to the hollow part of the liver, and the bladder of the gall. f. a small nerve belonging to the liver and the bladder of gall, from the ribbe branch of the sixth paire. gg. the cysticke twins from the gate veine.

CHAP. XX.

Of the spleene or Milt.

BVt because we cannot well shew the distribution of the gate veine, vnlesse the spleene be first taken away, and removed from its seate: therefore before we go any further, I have thought good to treat of the spleene. Therefore the spleene is of a soft, rare, and spongiouse substance (whereby it might more easily receive and drinke up the dreggs of the blood from the liver) and of a flesh more blacke than the liver. For it resembles the colour of its muddy blood, from which it is generated. It is of an indifferent greatnesse, but bigger in some, than in other some, according to the diverse temper and complexion of men. It hath, as it were, a triangular figure, gibbous on that part, it stickes to the ribbes and midriffe, but hollow on that part next the stomacke. It is composed of a coate, the proper flesh, a veine, artery, and nerve. The membrane comes from the *peritoneum*, the proper flesh from the *feces* or dregges of blood, or rather of the naturall melancholy humor, with which it is nourished. The fourth branch of the *vena porta*, or gate veine, lends it a veine; the first branch of the great descendant artery presently after the first entrance without the Midriffe, lends it an arterie. But it receives a nerve from the left costall, from the sixth conjugation on the inner part, by the rootes of the ribs; & we may manifestly see this nerve, not only dispersing it selfe through the coate of the liver, but also penetrating with its vessels the proper flesh thereof, after the selfesame manner, as we see it is in the heart and lungs. It is one in number, situate on the left side, betweene the stomacke and the bastard ribs, or rather the midriffe which descend to their rootes. For it oft times cleaves to the midriffe on its gibbous part, by a coate from the *peritoneum*, as also on the hollow part to the stomacke, both by certaine veines which sends it into the ventricle, as also by the kall. It hath connexion, either primarily, or secundarily, with all the parts of the body, by these its vessels.

The substance

Magnitude,
Figure.

Composition

Number, and
sit.

Connexion,

Temperand
ale.

It is of a cold and drie temper; the action and use of it is to separate the melanchollicke humor, which being feculent and droffie, may be attenuated by the force of many arteries dispersed through its substance. For by their continuall motion, and native heate, which they carrie in full force with them from the heart, that grosse blood puts off its grossenesse, which the spleene sends away by passages fit for that purpose, retaining the subtler portion for its nourishment. The passages by which it purges it selfe from the grossenesse of the melancholy blood, are a veine ascending from it into the stomacke to stirre up the appetite by its sourenesse, and strengthen the substance thereof by its astringion; and also another veine, which sometimes from the spleene branch, sometimes from the gate veine, plainly under its orifice, descends to the fundament, there to make the Hæmorrhoidall veines.

CHAP. XXI.

Of the Vena Porta, or Gate-veine, and the distribution thereof.

The substance
and figure.

Compositiō.
Number and
Site.

Temperand
Action.

Division there-
of into 6 bran-
ches of which
4 simple.

Cystica gemella.

Gastrica.

Gastropiplois.

Intestinalis.

Two compo-
pound.

Ramus splenis
cuscending
forth.

Coronalis.

Hæmorrhoidal:
arteria.



The gate-veine, as also all the other veines, is of a spermaticke substance, of a manifest largenesse, of a round and hollow figure, like to a pipe or quill. It is composed of its proper coate, and one common from the *peritonaum*. It is onely one, and that situate in the simous or hollow part of the liver, from whence it breakes forth (or rather out of the umbilicall veine) into the midst of all the gurs, with which it hath connexion, as also with the stomacke, spleen, *sphincter* of the fundament and *Peritonaum*, by the coat which it receives from thence. It is of a cold and dry temper. The Action of it is, to sucke the *Chylus* out of the ventricle and guts, and so to take and carry it to the Liver, untill it may carry back the same turned into blood for the nutriment of the stomacke, spleen and guts. This Gate veine comming out of the simous part of the liver, is divided into fixe branches, that is 4 simple and two compound, againe divided into many other branches. The first of the simple ascends from the fore part of the truncke to the bladder of the Gall by the passage of the Choller (and are marked with g. g.) with a like arterye for life and nourishment, and this distribution is knowne by the name of the *Cystica gemella* or Cysticke twins. The second is called the *Gastrica* or stomack veine arising in like manner from the fore part of the truncke, is carried to the *Pylorus* and the simous or backe part of the stomacke next to it.

The third is called *Gastropiplois*, the stomacke and kall veine, which comming from the right side of the gate veine goes to the gibbous part of the stomacke next to the *Pylorus* and the right side of the kall.

The fourth going forth from behind and on the right hand of the gate veine, ascends above the roote of the Meseraicke branch, even to the beginning of the gut *Jejunum*, along the gut *Duodenum*, from whence it is called *Intestinalis*, or the gut-veine. And these are the foure simple branches. Now we will speake of the compound.

The first is the spleenicke, which is divided after the following manner. For in its first beginning and upper part, it sends forth the *Coronalis*, or crowne veine of the stomacke, which by the backe part of the stomacke ascends into the upper and hollow part thereof; to which place, as soone as it arrives, it is divided againe into two branches, the one whereof climbs up even to its higher orifice, the other descends downe to the lower, sending forth by the way other branches to the fore and backe parts of the stomacke. These engirt and on every side incompass the body of the ventricle, for which cause they are named the crowne veines.

I have sometime observed this comming forth of the truncke, a little above the orifice of the spleenicke branch. But this same spleenicke branch on its lower part, produces the branch of the Hæmorrhoidall veines, which descending to the fundament above the left side of the loines, diffuses a good portion thereof into the least part of the collicke gut, and the right gut, at the end whereof it is often seene to be divided into five Hæmorrhoidall veines, sometimes more, sometimes lesse.


Sylvius writes that the Hemorrhoidall branch descends from the mesentericks, and truly we have sometimes observed it to have beene so. Yet it is more sutable to reason, that it should descend from the splenicke, not onely for that we have seene with our eyes that it is so, but also because it is appointed by nature for the evacuation of the excrementitious melancholike humor. But this same splenick branch out of the middle almost of its upper part produces the third branch going to the gibbous part of the stomacke, and the kall; they terme it the greater, middle and left *Gastrepiplois*. But on the lower part towards the spleene it produces the simple *Epiplois*, or kall-veine, which it diffuses through the left side of the kall. Moreover from its upper part, which touches the liver, it sends forth a short branch called *vas breve*, or *venosum*, to the upper orifice of the ventricle for stirring up the appetite.

Wee have oftentimes and almost alwayes observed, that this veinie vessell, which *Galen* calls *vas breve*, comes from the very body of the spleene, and is terminated in the midst of the stomacke on the left side, but never peirces both the coates thereof. Wherefore it is somewhat difficult to find, how the melancholy juyce can that way be powred, or sent into the capacitie of the stomacke. Now the splenicke branch, when it hath produced out of it those five forementioned branches, is wasted and dispersed into the substance and body of the spleene:

Then followes another compound branch of the *vena porta*, called the mesentericke, which is divided into three parts; the first and least whereof goes to the blind gut, and to the right and middle part of the collicke-gut, divided into an infinite multitude of other branches. The second and middle is wasted in the *Ileon*; as the third and greater in the *Iejunum* or empty gut. It is called Mesentericke because it is diffused over all the Mesentery; as the splenicke is in the spleen. And thus much wee have to say of the division of the gate veine, the which if at any time thou shalt find to be otherwise, than I have set downe, you must not wonder at it; for you shall scarce finde it the same in two bodies, by reason of the infinite varietie of particular bodies, which (as the Philosophers say) have each their owne, or peculiar gifts. Our judgement is the same of other divisions of the vessels. Yet wee have set downe that which wee have most frequently observed.

CHAP. XXII.

*Of the originall of the Artery, and the division of the branch,
descending to the naturall parts.*

 Those things being thus finished and considered, the guts should be pulled away, but seeing that if we should do so, we should disturbe and loose the division of the artery descending to the naturall parts; therefore I have thought it better to handle the division thereof, before the guts be plucked away. Therefore we must suppose, according to *Galen's* opinion, that as all the veines come from the liver, so all arteries proceede from the heart. This presently at the beginning is divided into two branches, the greater whereof descends downwards to the naturall parts upon the spine of the backe, taking its beginning at the fifth *vertebra* thereof, from whence it goes into the following arteries. The first called the intercostall, runnes amongst the intercostall muscles, and the distances of the ribs, and spinall marrow, through the perforations of the nerves on the right and left hand from the fifth true, even to the last of the bastard ribs.

This in going this progresse makes 7. litle branchings, distributed after the forementioned manner, and going forth of the trunk of the descendant over against each of the intercostal Muscles.

The second being parted into two goes on each side to the midriffe, whence it may be called, or expressed by the name of the *Diaphragmatica* or *Phrenica* (i) the midriffe artery. The third being of a large proportion, arising from the upper part of the artery presently after it hath passed the midriffe, is divided into two notable branches, whereof one goes to the stomacke, spleene, kall, to the hollow part of the

3.
*Gastrepiplois
major sinistra*

4.
Epiplois simplici

5.
*Vas breve seu
venosum*

*Lib. 4. de usu
partium*

2
*Ramus mesentericus, divided
into three
parts*

The originall
of arteries.
The division
of the great
descendant
artery, is into
these.

1
Arteria intercostalis

2
Phrenica

3.
Colica

liver and the gall; the other is sent forth to the mesentery and guts after the same manner, as wee said of the meseraicke veines, wherefore it is called the *Cæliaca*, or stomacke arterie. But wee must note, all their mouthes penetrate even to the innermost coate of the guts, that by that meanes they may the better and more easily attract the *Chylus* contained in them.

4. The fourth is carried to the reines, where it is named the reinall or emulgent, because it suckes fit matter from the whole masse of blood.

5. The fifth is sent to the testicles with the preparing spermaticke veines, whence also it is named the spermaticke artery, which arises on the right side, from the very trunk of the descendant artery; that it may associate the spermaticke veine of the same side, they runne one above another, beneath the hollow veine, wherefore wee must have a great care whilest wee labour to lay it open, that wee doe not hurt and breake it.

The seventh Figure of the lower belly.



A.A. the midriff turned back with the ribs and the *peritonæum*.

BB. the cave or hollow part of the liver, for the liver is lifted up that the hollow part of it may be better seene.

C. the least ligament of the liver.

D. the umbilicall veine.

E. the hollownesse in the liver, which giveth way to the stomacke.

F. the left orifice of the stomacke.

GG. certaine knubs, or knots, and impressions in the hollow part of the liver.

H. the bladder of gall:

I. the gale-veine, cut off, and branches which goe to the bladder of gall.

K. a nerve of the liver comming from the stomachicall nerve.

L. an artery common to the liver and bladder of gall.

M. a nerve common also to them both, comming from the right *costall* nerve of the ribs.

N. the passage of the gall to the guts cut off.

OO. the hollow of the fore parts of the spleene.

P. they line where the vessels of the spleene are implanted. Q. the trunk of the hollow veine. R. the trunk of the great artery. S. the *Cæliacall* artery cut off. T. V. the kidneys yet wrapped in their membrane. X. Y. the fatty veines called *vena adiposa*. a. b. the emulgent veines with the arteries under them. cc. dd. the ureter from either kidney to the bladder. e. f. the spermatickall veines to the testicles, the right from the hollow veine, the left from the emulgent. g. g. veines comming from the spermatickall to the *peritonæum*. h. i. the spermatickall arteries. k. the lower mesenterickall artery. l. the ascending of the great arterie above the hollow veine, and the division of it, and the hollow veine into two trunks. m. the arterie of the loines called *lumbaris*. n. the holy artery called *sacra*. o. a part of the right gut, p. the bladder of urine. * the connexion of the bladder with the *peritonæum*. q. a part of the vessels which leade the seed from the testicles, is here reflected. r. s. the *scrotum*, or cod, that is, the skinne that invests the yard and testicles. t. the fleshy pannicle or membrane which is under the cod. u. the coate which is proper to the testicles with his vessels. x. a part of the yard excoriated or flayed, and hanging downe.

The sixth going from the fore and upper part of this descendant arterie, descends with the Hæmorrhoidall veines to the fundament; presently from his beginning, sending forth certaine branches alongst the collicke gut, which by *anastomosis* are united with other branches of the *Celiacall* arteries; for whosoever shall looke more attentively, he shall often observe that veines are so united amongst themselves, and also arteries, and sometimes also the veines with the arteries. For an *anastomosis* is a communion and communicating of the vessels amongst themselves, by the application of their mouthes, that so by mutuall supplies they may ease each others defects. But they call this the lower meseraicke arterie.

*Hæmorrhoidall
in sem mesenterice
interior.*

The seventh proceeding from the trunk with so many branches as there be *vertebra's* in the loines, goes to the loines and the parts belonging to them, that is, the spinall marrow of that part, and other parts encompassing these *Vertebra's*, whereupon it is stiled the *Lumbaris* or Loine Artery.

*vertebra's
Lumbaris.*

The eight maketh the Iliacke arteries, until such time as it departs from the *Peritonæum* where the Crurall Arteryes take their originall. This Iliacke Artery sends many divarications towards the Holy bone where it takes its beginning, and to the places lying nere the Holy bone, which because they run the same course as the Iliacke veins, for brevities sake, we will let passe further mention of them, till we come to treat of the Iliacke veines.

*Peritonæum
Iliaca.*

CHAP. XXIII.

Of the distribution of the Nerves to the naturall parts.

T remains, that before the bowels be taken away, we shew the nerves sent to the entrailes and naturall parts, that as wise and provident men we may seeme to have omitted nothing. First we must know that these nerves are of the sixth conjugation, which descend as well to the stomacke all alongst the Gullet and the sides thereof, as those at the roots of the ribbes on both sides within. But when they are passed through the Midriffe, those which are distributed amongst the naturall parts follow the turnings of the veines and arteryes, but specially of the arteryes. Wherefore if you have a mind to follow this distribution of the nerves, you must chiefly looke for it in those places, in which the artery is distributed amongst the Guts above the loynes.

*The originall
of the nerves
which are car-
ryed to the na-
turall parts.*

These nerves are but small, because the parts serving for nutrition, needed none but litle nerves, for the performance of the third duty of the nerves, which is in the discerning and knowing of what is troublesome to them. For unlesse they had this sense, there is nothing would hinder, but these bowels necessary for life, being possessed with some hurtfull thing, the creature should presently fall downe dead; but we have this benefit by this sense, that as soone as any thing troubles and vellicates the bowels, we being admonished thereof may looke for helpe in time.

*Their magni-
tude and use.*

And besides if they were destitute of this sense, they might be gnawne, ulcerated and putrified by the raging acrimony of the excrements falling into and staying in them; but now (by meanes hereof) as soone as they find themselves pricked, or pluckt, presently by the expulsive faculty they endeavour to expell that which is troublesome, and so free themselves of present and future dangers.

CHAP. XXIII.

The manner of taking out the Guts.

When the Guts are to be taken out, you must begin with the Right Gut. And you must divide it, being first straitly tyed in two different places, at a just distance about foure fingers from the end, with a sharp knife betweene the two ligatures. Then you must shew its proper coats, and fibers, and that common one which

which it hath from the *Peritoneum*. This being done, you must in like manner binde the truncke of the gate veine as neere the originall as you can; that so all his branches being in like manner tyed there may be no feare of effusion of blood: you must doe the like with the *Cæliacke Arterye* at the left kidney, and in the lower *Mesentericke*, which descends to the Right gut with the *Hæmorrhoidall* veines. This being done, pul away the guts even to the *Duodenum*, which being in like manner tyed in two places, which ought to be below the insertion of the *Porus Chologogus* or passage of the Gall, that you may shew the oblique insertion thereof into that gut; for the obliquity of its insertion is worth observation, as that which is the cause that the Gall cannot flow backe into its bladder, by the compression of this Gut from below upwards. Then all these windings of the Guts may be taken away from the body.

CHAP. XXV.

The Originall and distribution of the descendent Hollow veine.

The originall
of the hollow
veine.
It is divided
into two
trunkes,

The division
of the greater
branch of
the hollow
veine,

1.
Adiposa

2.
Emulgent

3
Spermaticæ

4.
Lumbaris

BEcause the rest of the naturall parts, do almost all depend upon the descendent Hollow veine, therefore before we goe any further, we will shew its originall and distribution. We said before that all veines proceeded from the Liver, but yet in divers places. For the gate veine goes out of the hollow part, and the Hollow veine out of the Gibbous part of the liver, which going forth like the body of a tree, is divided into two great branches, the lesser of which goes to the vitall and animall parts, and the extremities of these parts, as we shall shew in their place. The greater descending from the backe part of the Liver above the *Vertebra's* of the loines to the parts beneath, goes in the manner following. The first division thereof is to the membranes of the reines, which come from the *Peritoneum*. Wherefore there it produces the *Vene adiposa*, or fatty veines, so called because they bring forth a great quantity of fat in those places; Of these fatty veines, there is a diverse originall, for the right doth oftentimes arise from the right emulgent because it is higher; but the lesse comes from the very truncke of the hollow veine, because the emulgent on that side is lower, and you shall scarce see it happen otherwise.

The second being the Kidney or Emulgent veines, go to the Reines, Which at their entrance, or a little before, is divided into two branches, like as the Artery is, the one higher, the other lower; and these againe into many other through the substance of the Kidneys, as you may learne better by ocular inspection, than by booke. They are thick and broad that the serous humor may without impediment have free passage. Their originall is different, for the right Emulgent, often times comes forth of the Hollow veine somewhat higher than the left; that seeing their office and duty is to purge the masse of blood from the chollericke and serous humor, that if any part thereof slide by the one, it may not so scape, but fall as it were into the other. Which certainly would not have happened if they had bin placed the one just opposit to the other. For the Serous or wheyish humor would have stayed as equally ballanced or poised, by reason of the contrariety of the action and traction, or drawing therof. But we must remember that in dissecting of bodics, I have oft times found in such as have beene troubled with the stone, seven Emulgent veines and so many arteries; foure from the left side comming from diverse places, of which the last came from the Iliacke; three from the right hand likewise in diverse places.

The third division is called the *Spermaticke* or seed veine, it goes to the Testicles; the originall thereof is thus, that the right arises on the fore part of the trunck of the hollow veine; but the left most commonly from the emulgent. Besides you shall sometimes finde that these have companions with them, to the right emulgent; but to the left another from the hollow veine, in some but on one side, in others on both. But also I have sometimes observed the left emulgent to proceed from the *spermaticke* or seed veine.

The fourth because it goes to the loynes, is called *Lumbaris*; which in his originall and insertion is wholly like the Artery of the loines. But there are 4 *Lumbares* or Loine veines

veines on each side, that is, one in each of the 4 spaces of the 5 *Vertebras* of the loines.

The fift division makes the *Iliacæ*, until passing through the *Peritoneum*, they take the name of *Crurall* veines; These are first divided into the Musculous, so called, because they go to the oblique ascendent and transverse muscles, and to the *Peritoneum*. Sometimes they have their originall from the end of the Trunck. And then the same *Iliacæ* are divided into the *Sacra*, or holy, which goe to the spinall marrow of the Holy bone, through those holes, by which the nerves generated of this marrow, have their passage.

Thirdly the *Iliacæ* are divided into the *Hypogastrica* so called, because they are distributed to all the parts of the *Hypogastrium*, or lower part of the lower belly, as to the right Gut, the muscles therof, the musculous skin, (in which place they often make the externall *Hæmorrhoidall*, ordained for the purging of such blood as offends in quantity, as those other [that is, the inward *Hæmorrhoidall*] which descend to the right Gut from the Gate veine by the spleenicke branch, serves for cleansing of that which offends in qualitie) to the bladder and the necke thereof even to the end of the yard, to the wombe, and even to the necke of the wombe and uterine parts of the privities; from whence it is likely the courses breake forth in weomen with child and virgins. But this same veine also sends a portion of it without the *Epigastrium* by that perforation which is common to the share and haunch bones, which strengthened by meeting of the other internall *Crurall* veine descends even to the Hamme, but in the meane time by the way it is communicated to the muscles of the thigh called *Obstratores* and other parts within. Fourthly, the *Iliacæ* produce the *Epigastrica* which on both sides from below ascend according to the length of the right muscles, spreading also by the way some branches to the oblique and transverse muscles and also to the *Peritoneum*. Fifthly, these *Iliacæ* produce the *Pudenda* or veines of the privities because they go in women to their privities, and into men to the Cods, where they enter that fleshy coat filled with veines, and goe to the skin of the yeard, they take there beginning under the *Hypogastrica*.

5
Iliacæ, which
are divided
into.

1
Musculosa.

2
Sacra.

3
Hypogastrica,
which produces
the Hæmor-
rhoidales ex-
terna.

4
Epigastrica.

5
Pudenda.

CHAP. XXVI.

Of the Kidneyes or Reines.

Now follow the Kidneyes, which that they may bee more easily scene, (after that you have diligently observed their scituation) you shall dispoile of there far, if they have any about them, as also of the membrane they have from the *Peritoneum*. First you shall shew all their conditions, beginning at their substance.

The substance of the Kidneyes is fleshy, dense and solid, least they should be hurt by the sharpnes of the urine; Their magnitude is large enough, as you may see. Their figure is somewhat long and round almost resembling a semicircle, and they are lightly flatted above and below. They are partly hollow and partly gibbous; the hollow lyes next the hollow veine, and on this side they receive the emulgent veines and Arteryes, and send forth the ureters; there gibbous part lyes towards the loines. They are composed of a coate comming from the *Peritoneum*, their owne peculiar flesh, with the effusion of blood about the proper vessels (as happens also in other entrails) generates a small nerve, which springing from the Costall of the sixt conjugation is diffused to each Kidney on his side into the coat of the kidney it selfe, although others thinke it alwayes accompanies the veine and artery.

But *Fallopins* that most diligent Author of Anatomy hath observed, that this nerve is not only oftentimes divaricated into the coat of the kidneyes, but also pierces into their substance. They are two in number that if the one of them should by chance be hurt, the other might supply those necessities of nature, for which the Kidneyes are made. They lye vpon the loynes at the sides of the great vessels, on which they depend by their proper veines and arteries; and they sticke to them, as it were by a certaine second coate, lest that they might be shaken by any violent motions. Wherefore

Their substance,
Magnitude,
Figure,
Composition,

Number.

Site.

fore

Connexion.

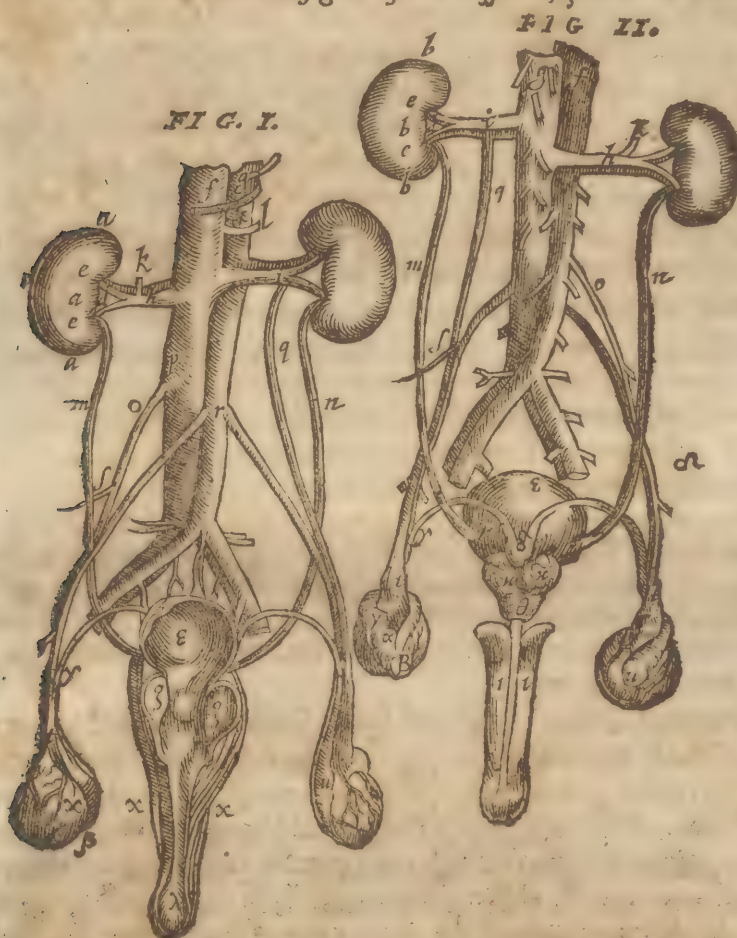
Temper.
Action.

Their Strainer.

fore we may say that the Kidneyes have two coates, one proper adhering to their substance, the other as it were coming from the *Peritoneum* on that part they sticke to it. The right Kidney is almost alwayes the higher, for those reasons I gave, speaking of the originall of the Emulgent vessels. *Columbus* seemes to thinke the contrary, but such like controversies may be quickly decided by the Eye. They have connexion with the principall vessels by the veines, nerves and arteries, by the coates with the loines and the other parts of the lower belly, but especially with the bladder by the ureters. They are of a hot and moist temper, as all fleshy parts are. Their action is to cleanse the Masse of the blood from the greater part of the serous and cholericke humor. I said the greater part, because it is needfull that some portion thereof should go with the alimentary blood to the solid parts, to serve in stead of a vehicle lest otherwise it should be too thicke.

Besides you must note that in each kidney there is a cavitye bounded by a certaine membrane, incompassed by the division of the emulgent veines and arteryes, through which the urine is strained partly by the expulsive facultie of the kidneyes, partly by the attractive of the ureters, which run through the substance of the kidneyes on the hollow side, no otherwise than the *Porus cholagogus* through the body of the Liver.

The ninth and tenth figure of the vessels of seed and urine.



The first figure sheweth the fore-side, the second the hinder-side.

a.a.a.1. The forepart of the right kidney.

b.b.b.2. The backe part of the left kidney.

c.1. the outside.

d.d.1.2. The inner side.

e.e.1.2. The two cavities wherinto the emulgent vessels are inserted.

f.f.1.2. The trunks of the hollow veine.

g.g.1.2. The trunk of the great artery.

h.i.1.2. The emulgent veine and artery.

k.k.1.2. The right fatty veine.

l.1. The left fatty veine.

*.1. The Coeliacall artery.

m.n.1.2. The ureters.

o.p.q.1.2. The right spermaticke veine which ariseth neere p. the left neere q.

r.i. The place where the Arteryes of seed arise. s.1.2. Small branches distributed from the spermaticall veines to the *Peritoneum*. t.1.2. The spiry varicous body, called *Varicosum vas pyramidale*. u.1.2. The *Parastata*, or *Epididymis*. x.1. The testicle yet covered with its coate. y.1.2. The place where the leading vessell called *vas deferens* doth arise. a.1.2. The descent of the same leading vessell. b.1.2. The revolution of the same leading vessell. c.1.2. The passage of the same vessell reflected like a recurrent nerve. d.2. The meeting of the same leading vessells. e.1.2. The bladder of urine, the first figure sheweth it open, the second sheweth the backe parts. 33.1. The small bladder of the seed opened. 11.2. The Glandules called *Glandula Prostata*. g.2. The sphincter muscle of the bladder. 11.1.2. The two bodyes which make the substance of the yard. n.1. The vessels which goe unto the yard and

and necke of the bladder. 1. The passage which is common to the urine and seed, cut open. 2. The implantation of the ureters into the bladder.

CHAP. XXVII.

Of the Spermaticke Vessells.



Now we should have spoken of the ureters, because as wee sayd before, they are passages derived from the Kidneyes to carry the urine to the bladder. But because they cannot be distinguished and shewed unles by the corrupting and vitiating the site of the spermaticke vessels; therefore I have thought it better to passe to the explication of all the spermaticke parts.

And first of all you must gently separate them, (that so the declaration of them may be more easie & manifest) and that from the coat which comes from the *peritoneum*, and the fat which invests them even to the share-bone, having diligently considered their site before you separate them. Then you shall teach that the substance of these vessels, is like to that of the veines and arteryes. Their quantity is small in thicknes, but of an indifferent length, by reason of the distance of their originall from the Testicles. They are longer in men than in weomen, because these have their Testicles hanging without their belly, but weomen have them lying hid within their belly. Their figure and composure is wholly like the figure and composition of the veines and arteries, except in this one thing, that from that place where they goe forth of the great capacity of the *Peritoneum*, they are turned into many intricate windings, like crooked swolne veines, even to the Testicles. That the spermaticke matter in that one tracte, which yet is no other than blood, may be prepared to concoction, or rather be turned into seed in these vessells, by the irradiation of the faculty of the Testicles. These vessells are sixe in number, foure preparing, and two ejaculatory, of which we will speake hereafter. Therefore on each side there be two preparing vessels, that is, a veine and an artery, arising as we told you when we spoke of the distribution of the hollow veine. They are inserted into the Testicles through that coate which some call *Epididymis*, others *Dartos*. Their site is oblique above the loines and flanks, whilest they runne downe betweene the ends of the share and hanch bone, they are knit to the parts lying under them, both by certaine fibers which they send from them, as also by the membrane they have from the *Peritoneum*. They have like temperature as the veines and Arteries have. Their action is to carry blood to the Testicles, for generating of seed.

Their substance.
Quantity.

Figure and
composure.

Number;

Site,

CHAP. XXVIII.

Of the Testicles, or Stones.



The Testicles are of a Glandulous, white, soft and loose substance, that so they may the more easily receive the spermaticke matter: their magnitude and figure equall, and resemble a small pullets Egge somewhat flatted; Their composure is of veines, arteries, coats and their proper flesh. Their veines and arteries proceed from the spermaticke vessels, their nerves from the sixth conjugation, by the roots of the ribbes and out of the holy bone. They are wrapped in foure coats, two whereof are common, and two proper. The common are the *Scrotum* or skin of the Cods, proceeding from the true skin; and the fleshy coate, which consists of the fleshy Pannicle in that place receiving a great number of vessells, through which occasion it is so called. The proper coats are first the *Erythron* arising from the proesse of the *Peritoneum*, going into the *Scrotum* together with the spermaticke vessels which it involves and covers; this appeares red both by reason of the vessells as also of the *Cremaster* muscles of the Testicles; Then the *Epididymis* or *Dartos* which takes its originall of the membrane

Their substance.

Magnitude and
figure.
Composition.

The Coat
Erythron

The *Epididymis*,
or *Dartos*,
of

The Cremas-
ter muscles.

Temper.

Action.

of the spermatick preparing vessels. The flesh of the Testicles is as it were a certaine effusion of matter about the vessels, as we said of other entrails. But you must observe that the *Erythroides* encompasses the whole stone, except its head, in which place it sticks to the *Epididymis* which is continued through the whole substance of the Testicle. This *Epididymis* or *Dartos* was therefore put about the stones, because the Testicles of themselves, are loose, spongy, cavernous and soft, so that they cannot safely be joyned to the spermatick vessels which are hard and strong. Wherefore Nature that it might joine extremes by a fit *Medium*, or meane, formed this coate *Epididymis*. This is scarce apparent in weomen by reason of its smallnesse. The two fore-mentioned common coats, adhere or sticke together by their vessels not only amongst themselves, but also with the *Erythroides*. You must besides observe the *Cremaster* muscles are of the said substance with other muscles, small and thin, of an oblique and broad figure, arising from the membrane of the *Peritoneum*, which (as we said before) assumes flesh from the flanks. Their composition is like that of other muscles. They are two, one each side on. They are situate from the ends of the flanks, even to the stones. They have connexion with the procelle of the *Peritoneum* and Testicles. Their temper is like that of other muscles. Their action is to hang and draw up the Testicles towards the belly, whence they are called, hanging muscles. The Testicles are most commonly two in number, on each side one, sometimes there be three, sometimes one alone, as it happens also in the Kidneies; for some have but one Kidney. They lye hid in the *Scrotum* at the very roots of the share bone, connexed to the principall parts of their vessels, with the necke of the bladder and yard; but by their coats they adhere to the parts from whence they have them. They are of a cold and moist temper, because they are glandulous; although they may be hot by accident by reason of the multitude of the vessels flowing thither. Those whose testicles are more hot are prompt to venery, and have their privities and the adjacent parts very hairy, and besides their testicles are more large and compact. Those on the contrary that have them cold are slow to venery, neither doe they beget many children, and those they get are rather female than male, their privities have litle haire upon them, and their testicles are small, soft and flat.

The action of the testicles is to generate seed, to corroborate all the parts of the body, and by a certaine manly irradiation to breed or encrease a true masculine courage. This you may know by Eunuches or such as are Gell, who are of a womanish nature, and are oftentimes more tender and weak than weomen. As *Hippocrates*, teaches by the example of the Scythians, *lib. de Aere, locis et aquis*.

CHAP. XXIX.

Of the varicous bodyes or *Parastrata*'s, and of the ejaculatory vessels and the glandulous or Prostates.

Their substance.

Here the Author speaks otherwise then *Galen*.

Action.



The varicous *Parastrata* are nervous and white bodyes, like as the nerves; round and close woven amongst themselves, they are stretched even from the top to the bottome of the testicles, from whence presently by their departure they produce the *Vasa ejaculatoria*, or trading vessels. But unless we doe very well distinguish their names, wee shall scarce shun confusion. For that which I call *Parastrata*, that is, as it were the head of the testicle, being as it were like another stone, is called *Epididymis* by *Galen lib. i. de semine*. But I by the example and authority of many Anatomists, understand by the *Epididymis* the proper coate of the testicles, of which thing I thought good by the way to admonish you of. Their Action is by their crooked passages to hinder the seed from departing out of the preparing into the leading vessels, before it shall be most perfectly laboured and concocted in these vessels by the power and force of the testicles. For in the first windings, the blood looks pure; but in the last it is not so red, but somewhat whitish. For Nature commonly doth thus delay the matter in its passage either by straitnesse, or obliquity, which it desires to make more perfect and elaborate by any new

new concoction; this we may learne by the foldings of the *Rete mirable*, the windings of the Guts, the wrinckles in the bottome of the stomacke, the straitnesse of the *Pylorus*, the capillary veines disperfed through the body of the Liver; certainly nature hath intended some such thing in the making of the spermaticke vessels. Their quantity is visible, and figure round tending somewhat to sharpnesse. They are composed of veines, nerves and arteryes (which they enjoy from the vessels of the testicles, from the *Epididymis*, or the coat, from the *Peritoneum* and their proper substance. Their temper is cold and dry. They be two in number, one to each testicle. But these varicous bodyes are called *Parastata*, Assisters, because they superficially assist, and are knit to the testicles according to their length, or long-ways. Out of the *Parastata* proceed the *Vasa ejaculatoria*, or leading vessels, being of the same substance as their progenitors, that is, solid, white and as it were nervous. Their quantity is indifferent, their figure round, and hollow, that the seed may have a free passage through them, yet they seeme not to be perforated by any manifest passage, unlesse by chance in such as have had a long *Gonorrhoea*. They have like temper as the *Parastats*, betweene which and the Prostates they are seated, immediatly knit with them both; as both in the coat and the other vessels with the parts from whence they take them.

Their quantity, figure and composition.

Their temper and number.

Vasa ejaculatoria the ejaculatory or leading vessels.

But we must note, that such like vessels coming out of the *parastats* ascend from the botom of the stones even to the top, in which place meeting with the preparing vessels, they rise into the belly by the same passages, and bind themselves together by nervous fibers, even to the inner capacity of the belly; from whence turning backe, they forsake the preparing, that so they may run to the bottome of the share-bone, into the midst of two glandulous bodies which they call *prostats* scituate at the neck of the bladder, that there meeting together they may grow into one passage.

For thus of three passages, that is, of the 2 leading vessels and 1 passage of the bladder, there is one common one in men for the casting forth of seed and urine. A Caruncle rising like a crest at the beginning of the neck of the bladder argues this uniting of the passages, which receiving this same passage which is sufficiently large, is oft times taken by such as are ignorant in anatomy for an unnaturall Caruncle, then especially when it is swolne through any occasion. These leading vessels are two in number, on each side one. Their action is to convey the seed made by the testicles to the Prostats and so to the necke of the bladder, so to be cast forth at the common passage. But if any aske whether that common passage made by the two leading vessels betweene the two glandulous bodyes be obvious to sense or no? We answer it is not manifest, though reason compell us to confesse that that way is perforated by reason of the spermaticke, grosse and viscous matter carryed that way. But peradventure the reason why that passage cannot be seene is, because in a dead carcassee all small passages are closed and hid, the heat and spirits being gone, and the great appeare much lesse, by reason all the perforations fade, and fall into themselves. Yet certainly these passage must needs be very strait, even in a living man, seeing that in a dead they will not admit the point of a needle. Wherefore we need not feare, least in searching, whilst we thrust the *Catheter* into the bladder, it penetrate into the common passage of the leading vessels which runnes within the Caruncle, unlesse peradventure by some chance, as a *Gonorrhoea*, or some great *Phlegmon*, it be much dilated besides nature. For I have sometimes seene such passages so open, that they would receive the head of a Spatherne; which thing should admonish us, that in searching we take great care, that we doe not rashly hurt this Caruncle, for being somewhat rashly handled with a *Catheter* it casts forth blood, especially if it be inflamed. But also the concurrence of the spirits flowing with great violence together with the seed, much helps forward such ejaculation thereof performed through these strait passages by the power of the imaginative faculty in the Act of generation.

Their number and action.

This Caruncle must be observed and distinguished from a *Hyper-sarcosis* or fleshy excrescence.

After the leading vessels follow the *Prostata*, being glandulous bodyes of the same substance and temper that other Glandules are. Their quantity is large enough, their figure round, and somewhat long, sending forth on each side a soft production of an indifferent length. They are composed of veines, nerves, arteries, a coate (which they have from the neighbouring parts) and lastly their proper flesh, which they have

The *Prostata*, Their quantity and figure.

Number and
sit.

An anatomis-
call axiome.

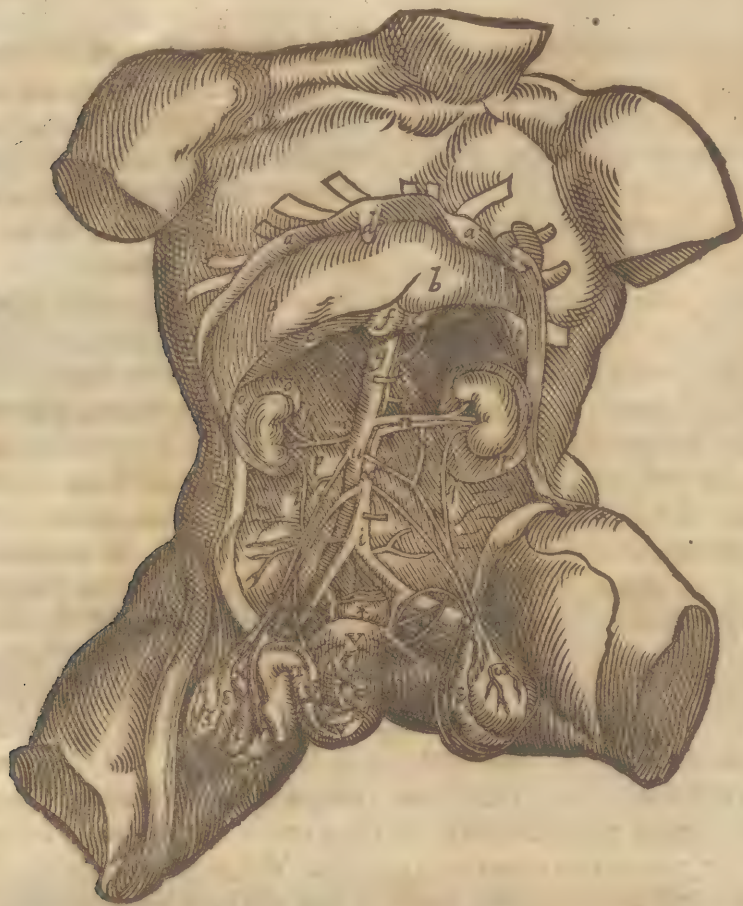
Their use.

Rond. in mea-
rhod. med. ad
morbo.

from their first conformation. They are two in number, scituate at the roote of the necke of the bladder, somewhat straitly bound, or tyed to the same, to the leading vessels, and the parts annexed to them. But alwaies observe, that every part which enjoyes nourishment, life and sense, either first or last hath connexion with the principall parts of the body, by the intercourse of the vessels which they receive from thence.

The use of the Prostats is, to receive in their proper body the seed laboured in the testicles, and to containe it there, untill it be troublesome either in quantity or quality or both. Besides they containe a certaine oily and viscide humor in their glandulous body, that continually distilling into the passage of the urine, it may preserve it from the acrimony and sharpnesse thereof. But wee have observed also on each side other Glandules, which *Rondeletius* calls *Appendices glandulose*, Glandulous dependances to arise from these Prostats, in which also their is seed reserved.

The 10. figure, wherein these things shewed in the former figure, are more exactly set forth.



aa A part of the Midriff
and of the *Peritoneum*
with the ribs broken.

bb cc The Convex or
gibbous part of the
Liver marked with bb.
the hollow or conca-
vous part with cc.

de The right and left li-
gaments of the Liver.

f The trunk of the gate
veine.

g The trunk of the hol-
low veine.

h i The fatty veines both
left and right.

i The ascent of the great
artery above the hol-
low veine, and the di-
vision thereof.

k The *Celiacall* artery:

m n The emulgent ves-
sels.

oo pp The fat tunicles or
coates torne from both
the kidneys.

qq The ureters that goe unto the bladder. r u. The right spermaticall veine which
ariseth neare to u. x y. The double originall of the left spermaticall veine. x. from
the emulgent, y from the hollow veine. a The originall of the spermaticall arteries
b Certaine branches from the spermaticke arteries which runne unto the *Peritoneum*
y The passage of the spermaticall vessels through the productions of the *Peritoneum*,
which must be observed by such as use to cut for the Rupture. d The spirie bodden
bodies entrance into the testicle, it is called *Corpus varicosum pyramidale*. e The *Para-
stata*. f The stone or testicle covered with his inmost coate. g The descent of the
leading vessell called *Vas deferens*. h y. The Bladder. * The right gut. i The glandules
called *prostata* into which the leading-vessels are inserted. p The muscle of the bladder:
stu Two bodies of the yard, s and t and v his vessels. ex. The coat of the Testicle. w The
muscle of the Testicle. y his vessels.

CHAP. XXX.

Of the Vreters.



Now it seemes fit to speak of the Vreters, bladder, and parts belonging to the bladder. Therefore the Vreters are of a spermaticke, white, dense and solid substance, of an indifferent bignes in length and thickness. Their figure is round and hollow. They are composed of two coats, one proper consisting of right and transverse fibers, which

The substance
magnitude
figure and
composure of
the vreters,

comes from the emulgent veines and arteries; the other common from the *Peritoneum*; besides they have veines, nerves and arteryes from the Neighbouring parts.

They be two in number on each side one; They are scituate between the Kidneyes (out of whose hollow part they proceed) and the bladder. But the manner how the Vreters insert or enter themselves into the bladder, and the *Porus Cholagogus* into the *Duodenum*, exceeds admiration; for the ureters are not directly but obliquely implanted neere the orifice of the bladder & penetrate into the inner space thereof; for within they doe as it were divide the membrane or membranous coat of the body of the bladder, and insinuate themselves into that, as though it were double. But this is opened at the entrance of the urine, but shut at other times, the cover as it were falling upon it, so that the humor which is false into the capacity of the bladder cannot bee forced or driven backe, no not so much as the aire blowne into it can come this way out, as we see in swines bladders blowne vp and filled with aire.

Number and
size,

For wee see it is the Aire contained in these which fills them thus, neither canne it bee pressed forth but with extraordinary force.

For as this skinne or coat turned in by the force of the humor giues way, so it being pressed out by the body contained within, thrusts its whole body into the passage as a stopple; like to this is the insertion of the *Porus Cholagogus* into the Guts.

The ureters have connexion with the above mentioned parts, with the muscles *Connexion* of the loines; upon which they runne from the Kidneyes to the bladder.

Wherefore nothing hinders, but that the stone sliding through the ureters into the bladder, may stupify the thigh as much as it did when it was in the Kidney. They are of a cold and dry temper.

Their use is, to serve as passages, or channels for carrying the urine into the bladder. *Temper and use,*

CHAP. XXXI.

Of the Bladder.



The bladder is of the same substance that the ureters, that is, nervous, that *The substance* so it may bee the more easily dilated.

It is of a large proportion, in some bigger in some lesse, according to the difference of age, and habite of body. It is of a round figure and as *Figure.*

it were Pyramidall.

It is composed of two coats, one proper which is very thicke and strong composed of the three sorts of fibers, that is, in the inner side of the direct; without of the transverse; and in the midst of the oblique. *Composition,*

The other common Coat comming from the *Peritoneum* hath veines and arteryes on each side one, from the *Hypogastrick* vessels above the holy-bone, also it hath nerves on each side from the sixth conjugation mixt with the nerves of the holy-bone.

For these nerves descend from the braine even to the end of the holy-bone.

It is but one and that scituate in men in the lower belly upon the right Gut and below the share bone, but in women between the wombe and that bone, to which it cleaves with its membranous ligaments, as it doth to the yard by its neck, and to the

Temper, use or
action.

the right gut by its common coate and proper vessels. It is of a cold and dry temper.

Temper, use or
action.

The use and action thereof is by the fibers continually to draw the urine, and containe it as long as neede requires, and then to expell it by the necke, partly by compression either of it selfe, or rather of the muscles of the *Epigastrium* and *Midriffe*, because this motion, seeing it is voluntary cannot be performed unlesse by a muscle which the bladder wants; partly also by the dilatation and relaxation of the sphincter muscle composed of transverse fibers, like the sphincter of the fundament, after the same manner to shut up the orifice of the bladder, that the urine flow not out against our will. But the bladder as it fills is dilated, but as it is emptied, it is contracted like a purse. You may easily observe this Muscle in a Sowes bladder, it is stretched from the orifice of the bladder and beginning of the urinarye passage even to the privities even in women; but in men it is terminated in the *Perinaum*, as soone as it hath left the right Gut.

Besides, this muscle is thus farre stretched forth, that the urine by its compression should be wholly pressed out of the bladder, which by too long stay would by its acrimony doe some harme. This is the common opinion of Anatomists concerning the Sphincter of the bladder, which never-the-lesse *Fallopins* allowes not of. For (saith hee) if this muscle should bee scituate beneath the glandulous bodies, the seed in copulation could never be cast forth without some small quantity of urine. Wherefore he thinks that this muscle is scituate above the *Prostata*, and that it is nothing els but the beginning of the necke of the bladder, which becoms more fleshy whilst it is woven with transverse fibers.

The eleventh figure of the bladder and yarde.



AB, 1, 2, 3, 4, 5, 7, 9. The two bodies which make the yarde.

CC 2, 3. The place where these two bodies do first arise.

D 1, 2, 4, 5, 7, 9. The nut of the yarde called *glans penis*.

EE 4, 5. The fungous and redde substance of the bodies of the yarde.

F 4, 5. The mutuall connexion of the bodies of the yarde, and the nervous outward substance of the same, compassing round about the former fungous substance.

G 1, 2, 3, 4, 5, 7, 9. The passage of the urine, or common pipe running under the yarde all along his length.

H. I. 1, 2. The first paire of Muscles of the yarde,

which in the first figure doe yet grow to it, but in the second they hang from their originall. K. L. 1, 2. The second paire of Muscles of the yarde, in the first figure growing, in the second hanging from their insertion. M 1, 2. The sphincter of the right gut. N 3, 7, 8, 9. The round sphincter Muscle of the bladder. O O, A Membrane which

which is over the holes of the share bone. P 2. A rounde Ligament from the meeting of the share bones unto the head of the thigh. Q. 3, 7, 8. The body of the bladder. R R, 3, 7. The *Prostate*, into which seed when it is perfectly laboured, is led. S S, 3, 8. Portions of the ureters. T T* 3, Portions of the vessels which leade downe the seed. V V, 7, 8. The umbilicall arteries. X 7, 8. The ligament of the bladder cald *Vrachus*. Y, 7, 8. The navel or *umbilicus*. Z, 7, 8. The umbilicall veine. aa 7. The veine and artery of the yard. b 5. The artery distributed through the body of the yard.

For the necke of the bladder it differs nothing in substance, compofure, number, and temper from the bladder, but onely in quantity, which is neither so large, nor round in figure, but somewhat long together with the yarde representing the shape of the letter S. It is placed in men at the end of the right Gut and *Perinaum*, rising upwards even to the roots of the yarde, and with it bending it self downwards; in weomen it is short, broad, and streight, ending at the orifice of the necke of the wombe betweene the nervous bodyes of the *Nympha*.

The necke of the bladder.

In men it hath connexion with the bladder, the ejaculatory vessels, the right gut and yarde; but in weomen onely with the necke of the wombe and privities. The use of it is in men to cast forth seed and urine, in weomen onely urine. But wee must note that the share bones must be divided and pulled asunder, in that part where they are joyned, that so you may the more exactly observe the scituation of these parts. Besides you must note that by the *Perinaum* we understand nothing else, in men and weomen, than that space which is from the fundament to the privities in which the seame is called *Tanyus*.

The connexion or use thereof.

CHAP. XXXII.

Of the yarde.



OW followes the declaration of the Privy parts of men and weomen, and first wee will treat of mens. The yard is of a ligamentous substance because it hath its originall from bones, it is of an indifferēt magnitude in all dimenſions, yet in ſome bigger, in ſome leſſe; the figure of it is round, but yet ſome what flattened above and beneath.

The ſubſtance quantity and figure of the yarde.

It is compoſed of a double coat, Nerves, veines, arteryes, two ligaments, the paſſage of the urine, and foure muſcles. It hath its coats both from the true ſkin; as alſo from the fleſhy pannicle, but the veines and Arteryes from theſe of the lower part of the lower belly which runne on the lower part of the Holy-bone into the yard, as the ſeminary veſſels runne on the upper part.

Compoſure.

The ligaments of the yard proceed on both ſides from the ſides and lower commiſſure of the ſhare-bones; wherefore the yard is immediatly at his root furniſhed with a double ligament, but theſe two preſently runne into one ſpongy one. The paſſage of the urine ſituate in the lower part of the yarde comes from the neck of the bladder betweene the two ligaments.

The ligaments.

For the foure muſcles, the two ſide ones compoſeing or making a great part of the yard, proceed from the inward extuberancy of the Hip-bone, and preſently they are dilated from their originall, and then grow leſſe againe. The two other lower ariſe from the muſcles of the fundament and accompany the urinary paſſage the length of the *perinaum* untill they enter the yard; but theſe two muſcles cleave ſo cloſe together, that they may ſeeme one having a triangular forme.

The muſcles.

The action of theſe foure muſcles in the act of generation is they open and dilate this common paſſage of urine and ſeed, that the ſeede may be forcibly or violently caſt into the ſeild of nature; and beſides they then keepe the yarde ſo ſtiſſe, that it cannot bend to either ſide.

Their Action.

The yard is in number one, and ſituate upon the lower parts of the ſhare bone that it might

might bee more stiffe in erection. It hath connexion with the share-bone and neighbouring parts; by the particles of which it is composed. It is of a cold and dry temper. The action of it is to cast the seed into the wombe, for preservation of mankind.

The Nut,
The *Præputium*,
or foreskin.

The head of it begins where the tendons end, this head from the figure thereof is called *Glans* and *Balanus*, that is the Nut, and the skin which covers that head is called *Præputium* that is, the foreskin. The flesh of this *Glandule* is of a middle nature between the Glandulous flesh and true skin. But you must note that the Ligaments of the yarde are spongy contrary to the condition of others, and filled with grosse and blacke blood. But all these stirred up by the delight of desired pleasure and provoked with a venereall fire, swell up and erect the yard.

CHAP. XXXIII.

Of the spermaticke vessels and testicles in weomen.

In what the
spermaticke
vessels in weo-
men differ
from those in
men.



OW we should treat of the Privy parts in weomen but because they depend upon the necke and proper body of the wombe, we will first speake of the wombe, hauing first declared what difference there is betweene the spermaticke vessels and testicles of men and weomen. Wherefore we must know that the spermatick vessels in weomen do nothing differ from those in men in substance, figure, composure, number, connexion, temper, originall and use, but only in magnitude and distribution; for weomen have them more large and short.

Why they are
larger but
shorter then
mens.

It was fit they should be more large, because they should not onely convey the matter fit for generation of young and nourishment of the testicles, but also sufficient for the nourishment of the wombe and child; but shorter because they end at the testicles and wombe within the belly in weomen. Where you must note that the preparing spermaticke vessels, a litle before they come to the Testicles, are divided into two unequall branches, of which the lesser bended, after the same manner as wee said in men, goes into the head of the testicle, through which it sends a slender branch into the coats of the testicles for life and nourishment, and not onely into the coats but also into the leading vessels. But the bigger branch descends on each side by the upper part of the wombe betweene the proper coate and the common, from the *Peritoneum* where it is devided into diuers branches. By this difference of the spermaticke vessels you may easily understand why weomen cast forth lesse seed than men.

In what their
testicles differ
from mens.

For their Testicles, they differ litle from mens but in quantity; For they are lesser and in figure more hollow and flat, by reason of their defective heat which could not elevate or lift them vp to their just magnitude. Their composure is more simple, for they want the *scrotum* or cod, the fleshy coate, and also according to the opinion of some the *Erythroides*, but in place thereof they have another from the *Peritoneum* which covers the proper coat, that is the *Epididymis*, or *Dartos*. *Silvius* writes that womens Testicles want the *Erythroides*; yet it is certaine that besides their peculiar coat *Dartos*, they have another from the *peritoneum*, which is the *Erythroides*, or as *Fallopins* calls it the *Elythroides*, that is as much as the *vaginalis* or sheath. But I thinke that this error hath sprung from the misunderstanding that place in *Galen* where he writes, that womens testicles want the *Epididymis*. For we must not understand that to be spoken of the coate, but of the varicous parastrats (as I formerly said). They differ nothing in number, but in site; for in men they hang without the belly at the share bone above the *Peritoneum*; weomen have them lying hide in their belly, nere the bottome at the sides of the wombe, but yet so as they touch not the body of the wombe.

Lib. 14. de usu
part.

Site.

Connexion.

But these testicles are tyed to the wombe both by a coate from the *Peritoneum*, as also by the leading vessels descending to the hornes of the wombe, but to the rest of the body by the vessels and the nerves arising from the holy bone and

Costall

costall nerves. They are of a colder Temper than mans. The ejacutorie, or leading vessels in women differ thus from mens, they are large at the beginning, and of a veinie consistence, or substance, so that you can scarce discern them from the coate *Peritonæum*, then presently they become nervous, and waxe so slender, that they may seeme broken or torne, though it be not so; but when they come nearer to the hornes of the wombe, they are againe dilated; in their other conditions, they agree with mens, but that they are altogether more slender and short. They have a round figure, but more intricate windings than mens; I beleeeve, that these windings might supply the defect of the varicous Parastats. They are seated betweene the testicles and wombe, for they proceede out of the head of the testicle, than presently armed with a coate from the *Peritonæum*, they are implanted into the wombe by its hornes.

Temper.
Their ejacu-
ratory vessels.

Why they
have more
intricate win-
dings.
Their site.

The twelfth Figure, of the Wombe.



A. The bottome of the wombe laid open without any membrane.

BB. The necke of the wombe turned upward.

CD. a part of the bottome of the wombe like the nut of the yard, swelling into the upper part of the necke of the wombe, in the middle whereof the orifice appeareth.

EE. a membrane knitting the wombe to the *Peritonæum*, and holding together the vessels thereof.

F. the left testicle.

G. the spermaticall veine and artery.

H. a part of the spermaticall vessels reaching unto the bottome of the wombe.

I. one part of the vessels comming to the testicles
• a vessell leading the seede unto the wombe.

K. the coate of the testicle

with the implication of the vessels. L. the cavities of the bladder opened. M. the insertion of the Vreters into the bladder. N. the Vreters cut from the kidneys. O. the insertion of the necke of the bladder into the lap or privitie.

The second Figure.

aa. The spermaticall veine and artery. bb. branches distributed to the *Peritonæum* from the spermaticall vessels. c. the bottome of the wombe. d. the necke of the wombe. e. certaine vessels running through the inside of the wombe, and the necke thereof. ff. vessels reaching to the bottome of the wombe produced from the spermaticall vessell. gg. the leading vessell of seede called *Tuba* the Trumpet. hh. a branch of the spermaticall vessell compassing the trumpet. ii. the testicles. kk. the lower ligaments of the wombe, which some call the *Cremasteres* or hanging muscles of the wombe. l. the lap or privitie into which the *Cremasteres* doe end. m. a portion of the necke of the bladder.

The

The third Figure.

aa. the spermaticall vessels. *bb.* a branch from these spermaticall vessels to the bottome of the wombe. *cc.* the body or bottome of the wombe. *d.* the necke of the same. *e.* the necke of the bladder ending into the necke of the wombe. *f.* the testicles. *gg.* the leading vessels, commonly though not so well called the ejaculatory vessels. *hh.* the division of these vessels, one of them determining into the hornes at double *kk.* *ii.* the other branch ending in the necke, by which women with child avoid their seede. *kk.* the hornes of the wombe.

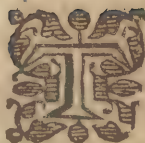
The fourth Figure.

AB. The bosome of the bottome of the wombe, at whose sides are the hornes. *CD.* a line like a suture or seame, a little distinguishing that bosome. *EE.* the substance of the bottome of the wombe, or the thicknesse of his inner coate. *F.* a protuberation or swelling of the wombe in the middle of the bosome. *G.* the orifice of the bottome of the wombe. *HH.* the coate or second cover of the bottome of the wombe, coming from the *Peritoneum*. *III.* a portion of the membranes which tie the wombe. *KK.* the beginning of the necke of the wombe. *L.* the necke of the bladder inserted into the necke of the wombe. *m.* the *Clitoris* in the toppe of the privity. *n.* the incision qualitie of the privitie where the *Hymen* is placed. *o.* the hole or passage of the privitie in the cleft. *p.* the skinny caruncle of the privitie.

CHAP. XX XIII.

Of the Wombe.

Wherein the
privy parts in
women differ
from those in
men.



The Wombe is a part proper onely to women, given by nature in stead of the *Scrotum*, as the necke thereof, and the annexed parts in stead of the yard; so that if any more exactly consider the parts of generation in women and men, he shall finde that they differ not much in number, but onely in situation and use. For that which man hath apparent without, that women have hid within, both by the singular providence of Nature, as also by the defect of heate in women, which could not drive and thrust forth those parts, as in men. The wombe is of a nervous and membranous substance, that it may be more easily dilated and contracted, as neede shall require.

The substance
and magni-
tude of the
wombe.

The magnitude thereof is diverse, according to the diversitie of age, the use of venery, the flowing of their courses, and the time of conception. The wombe is but small in one of unripe age, having not used venery, nor which is menstruous; therefore the quantitie cannot be rightly defined.

Figure.

The hornes of
the wombe.

Composure.
The veins and
Arteries.

The figure of the wombe is absolutely like that of the bladder, if you consider it without the productions, which *Herophilus* called hornes, by reason of the similitude they have with the hornes of Oxen at their first coming forth. It consists of simple and compound parts. The simple are the veines, arteries, nerves, and coates. The veines and arteries are foure in number, two from the preparing spermaticke vessels, the two other ascend thither from the *Hypogastricke*, after this manner.

First, these vessels before they ascend on each side to the wombe, divide themselves into two branches, from which other some goe to the lower part of the wombe, other some to the necke thereof, by which the menstruous bloud, if it abound from the conception, may be purged.

Nerves.

Nerves come on both sides to the wombe, both from the sixt conjugation, descending by the length of the backe bone, as also from the holy bone, which presently united and joyned together, ascend and are distributed through the wombe, like the veines and arteries.

The Coats.

The utmost or common coate of the wombe, proceeds from the *Peritoneum*, on that part it touches the holy bone; but the proper it hath from the first conformation, which is composed of the three sorts of fibers, of the right on the inside for the attraction of both seedes; the transverse without to expell, if occasion be; the oblique in the midst for the due retention thereof.

The

The wombe admits no division, unlessse into the right and left side, by an obicure line or seame, such as we see in the *Scrotum*, but scarce so manifest; neither must we ascertthe maner of the ancients, or imagine any other icels in the womb. For by the law of nature, a woman at one birth can have no more than two. An argument hereof is, they have no more than two dugges. If any chance to bring forth more, it is besides nature, and somewhat monstrous, because nature hath made no provision of nourishment for them.

No cels in the wombe.

Nature hath placed the wombe at the bottome of the belly, because that place seemes most fit to receive seede, to carrie and bring forth the young. It is placed betweene the bladder and right gut, and is bound to these parts much more straitly, by the necke, than by the body thereof; but also besides it is tied with two most strong ligaments on the sides, and upper parts of the sharebone, on which it seemes to hang; but by its common coate from the *Peritoneum*, chiefly thicke in that place, it is tied to the hollow bone, and the bones of the hanch and loines.

The site.

By reason of this strait connexion, a woman with child feeling the painefull drawings backe, and as it were, convulsions of those ligaments, knowes her selfe with child. It is of a cold and moist temper, rather by accident, than of it selfe. The action thereof is to containe both the feedes, and to chearish, preserve, and nourish it, so contained, untill the time appointed by nature; and also besides, to receive, and evacuate the menstruous blood. The compound parts of the wombe are, the proper body and necke thereof. That body is extended in women bigge with child, even to the navell, in some higher, in some lower.

The temper and action.

In the inner side the *Cotyledones* come into our consideration, which are nothing else than the orifices and mouthes of the veines, ending in that place. They scarce appeare in women, unlessse presently after child-bearing, or their menstruall purgation; but they are apparent in sheepe, Goates, and Kine, at all times like wheat cornes, unlessse when they are with young, for then they are of the bignesse of hasell nuts; but then also they swell up in women, and are like a rude piece of flesh of a finger and a halfe thicke; which begirt all the naturall parts of the infant shut up in the wombe; out of which respect this shapelesse flesh, according to the opinion of some, is reckoned amongst the number of coates investing the infant, and called *Chorion*, because, as in beasts, the *Chorion* is interwoven with veines, and arteries, whence the umbilicall vessels proceede; so in women this fleshie lumpe is woven with veines, and arteries, whence such vessels have their originall. Which thing, how true and agreeable to reason it is, let other men judge.

The *Cotyledones*.

Columbus justly reproved.

There is one thing whereof I would admonish thee, that as the growth of the *Cotyledones* in beasts, are not called by the name of *Chorion*, but are onely said to be the dependants thereof, so in women such swollen *Cotyledones* merit not the name of *Chorion*, but rather of the dependances thereof,

This body ends in a certaine straitnesse which is met withall, in following it towards the privities, in women who have borne no children, or have remained barren some certaine time; for in such as are lately delivered, you can see nothing but a cavitie and no straitnesse at all. This straitnesse wee call the proper orifice of the wombe, which is most exactly shut after the conception, especially untill the membrane, or coats incompassing the child be finished, and strong enough to containe the seede, that it flow not forth, nor be corrupted by entrance of the aire; for it is opened to send forth the seede, and in some the courses and serous humors, which are heaped up in the wombe in the time of their being with child.

The orifice of the wombe.

The proper orifice of the wombe is not alwayes exactly shut in women with child.

The necke of the wombe.

From this orifice the necke of the wombe taking its originall, is extended even to the privities. It is of a musculous substance, composed of soft flesh, because it might be extended and contracted, wrinkled, and stretched forth, and unfolded, and wrested, and shaken at the comming forth of the child, and after be restored to its former soundnesse and integritie. In proceesse of age it growes harder, both by use of venery, and also by reason of age, by which the whole body in all parts thereof becomes drie and hard. But in growing, and young women, it is more tractable and flexible for the necessitie of nature.

The

Its magnitude.
Composition,

The magnitude is sufficiently large in all dimensions, though divers, by reason of the infinite varietie of bodies. The figure is long, round, and hollow. The composition is the same with the wombe, but it receives not so many vessels as the wombe; for it hath none but those which are sent from the *Hypogastricke* veines, by the branches ascending to the wombe. This necke on the inside is wrinckled with many crests, like the upper part of a dogges mouth, so in copulation to cause greater pleasure by that inequality, and also to shorten the act.

Number and
size,

It is onely one, and that situate betweene the necke of the bladder and the right gut, to which it closely sticketh, as to the wombe by the proper orifice thereof, and to the privities by its owne orifice; but by the vessels to all the parts from whence they are sent.

Temper.

It is of a cold and drie temper, and the way to admit the seede into the wombe, to exclude the infant out of the wombe, as also the menstruali evacuation. But it is worth observation, that in all this passage there is no such membrane found, as that they called *Hymen*, which they feigned to be broken at the first coition. Yet notwithstanding *Columbus*, *Fallopins*, *Wierus*, and many other learned men of our time think otherwise, and say, that in Virgins a litle above the passage of the urine, may be found and seene such a nervous membrane, placed overthwart as it were in the middle way of this necke, and perforated for the passage of the courses. But you may finde this false by experience; it is likely the Ancients fell into this error through this occasion, because that in some a good quantitie of blood breakes forth of these places at the first copulation.

No Hymen.

From whence
the blood pro-
ceeds that
breaks forth
in some vir-
gins in the
first coition,

But it is more probable, that this happens by the violent attrition of certaine vessels lying in the inward superficies of the necke of the wombe, not being able to endure without breaking so great extention as that nervous necke undergoes at the first coition. For a maide which is marriageable, and hath her genitall parts proportionable in quantitie and bignesse to a mans, shall finde no such effusion of blood, as we shall shew more at large in our Booke of Generation.

This necke ends at the privities, where its proper orifice is, which privy parts we must treat of, as being the productions and appendices of this necke. This *Pudendum*, or privitie, is of a middle substance, betweene the flesh and a nerve; the magnitude is sufficiently large, the figure round, hollow, long. It is composed of veines, arteries, nerves, descending to the necke of the wombe, and a double coate proceeding from the true skinn and fleshie pannicle; both these coates are there firmly united by the flesh comming betweene them; whereupon it is said, that this part consists of a musculous coate. It is one in number, situate above the *Perinaum*. It hath connexion with the fundament, the necke of the wombe and bladder by both their peculiar orifices.

It hath a middle temper, betweene hot, and cold, moist and drie. It hath the same use as a mans *Preputium* or fore-skinne, that is, that together with the *Nympha* it may hinder the entrance of the aire, by which the wombe may be in danger to take cold.

Ala.

αλειον, αλματα.

The lips of the privities called by the Greekes αλειον, αλματα, by the Latines *Ala*, containe all that region which is invested with haire; and because we have false into mention of these *Nympha*, you must know that they are as it were productions of the musculous skinn, which descend on both sides, from the upper part of the share-bone downwards, even to the orifice of the necke of the bladder, oft times growing to so great a bignesse, that they will stand out like a mans yard. Wherefore in some they must be cut off in their young yeares, yet with a great deale of caution, lest if they be cut too rashly, so great an effusion of blood may follow, that it may cause, either death to the woman, or barrenesse of the wombe by reason of the refrigeration by the too great effusion of blood. The latter Anatomists, as *Columbus* and *Fallopins* besides these parts, have made mention of another particle, which stands forth in the upper part of the privities, and also of the urinary passage, which joynes together those wings wee formerly mentioned. *Columbus* calls it *Tentigo*, *Fallopins* *Cleitoris*,

Cleitoris, Tentigo

whence proceeds that infamous word *Cleitorizein*, (which signifies impudently to handle that part.) But because it is an obscene part, let those which desire to know more of it, read the Authors which I cited,

The thirteenth Figure, shewing the parts of women different from these in men.



A.B.C.D. The *Peritonaeum* reflected or turned backward, above and below.

E.F. the gibbous part of the liver E, the cave or hollow part F.

G. The trunk of the gate veine.

H. the hollow veine.

I. the great artery.

K. the root of the *Calicall* artery which accompanieth the gate veine.

L.M. the fatty veine going to the coats of the kidneys.

N.O. the fore-part of both the kidneys.

T.V. the emulgent veines and arteries.

aa. the right ureter at the lowest a, cut from a part which neere to b, sticketh yet to the bladder, because the bottome of the bladder is drawne to the left-side.

c. the left ureter inserted into the bladder neere to r.

dd. the spermaticke veine which goeth to the left testicle marked with i.

ee. the spermaticke veine which goeth to the left testicle with i, also.

f. the trunk of the great arterie from whence the spermaticall arteries doe proceed.
g.h. the spermaticall arteries. ii. the two testicles. ll. a branch which from the spermaticke vessels reacheth unto the bottome of the wombe. mm. the leading vessell of the seede which *Falopius* calleth the *tuba* or trumpet, because it is crooked and reflected.
n. a branch of the spermaticke vessel, compassing the leading vessell. oo. a vessell like a worme which passeth to the wombe, some call it *Cremaster*. p. the bottome of the wombe called *fundus uteri*. q. a part of the right gut. r. s. the bottome of the bladder whereto is inserted the left ureter, and a veine led from the necke of the wombe neere unto r. t. the necke of the bladder. u. the same inserted into the privitie or lap. x. a part of the necke of the wombe above the privitie. yy. certaine skinnie Caruncles of the privities, in the midst of which is the slit, and on both sides appeare little hillocks.

The Figures belonging to the Dugges and Breasts.

aa. The veines of the Dugs which come from those, which descending from the top of the shoulder, are offered to the skinne. b. the veines of the dugges derived from those which through the arme-hole are led into the hand. c. the body of the Dugge or Breast. dd. the kernels and fat betweene them. ee. the vessels of the Dugges descending from the lower part of the necke called *jugulum*, under the breast bone.

CHAP. XXXV.

Of the Coats containing the Infant in the wombe, and of the Navell.

Their substance, magnitude, figure, and composition.



He membranes or coates containing the infant in the wombe of the mother, are of a spermaticke and nervous substance, having their matter from the seede of the mother. But they are nervous that so they may be the more easily extended, as it shall be necessary for the child. They are of good length and bredth, especially neare the time of deliverance, they are round in figure like the wombe.

Their composition is of veines, arteries, and their proper substance. The veines, and arteries, are distributed to them (whether obscurely, or manifestly, more or fewer) from the wombe by the *Cotyledones*, which have the same office, as long as the child is contained in the wombe, as the nipples or pappes of the nurses after it is borne. For thus the wombe brings the *Cotyledones*, or veines, degenerating into them, through the coates like certaine paps to the infant shut up in them.

Their number.

These coates are three in number according to *Galen*; one called the *Chorion*, Secundine, or afterbirth; the other *Allantoides*; the third *Amnios*. I find this number of coates in beasts, but not in women, unlesse peradventure any will reckon up in the number of the coates, the *Cotyledones* swollen up, and grown into a fleshie masse, which many skilfull in Anatomy doe write, which opinion notwithstanding we cannot receive as true. I could never in any place finde the *Allantoides* in women with child, neither in the infant borne in the sixth, seventh, eight, or in the full time, being the ninth moneth, although I have sought it with all possible diligence, the Midwives being set apart, which might have violated some of the coates.

But thus I went about this businesse, I devided the dead body of the mother crosswise upon the region of the wombe, and taking away all impediments, which might either hinder, or obscure our diligence, with as much dexteritie as was possible, we did not onely draw away that receptacle or den of the infant, from the inward surface of the wombe, to which it stucke by the *Cotyledones*, but we also tooke away the first membrane which we called *Chorion*, from that which lies next under it, called *Amnios*, without any rending or tearing; for thus we powred forth no moisture, whereby it might be said, that any coate, made for the containing of that humor, was rent, or torne. And then we diligently looked, having many witnesses and spectators present, if in any place there did appeare any distinction of these two membranes, the *Allantoides*, and *Amnios*, for the separating the contained humors, and for other uses which they mention.

But when we could perceive no such thing, we tooke the *Amnios* filled with moisture on the upper side, and having opened it, two servants so holding the apertion, that no moisture might flow out of it into the circumference of the *Chorion* or womb; then presently with sponges we drew out by little and little all the humiditie contained in it, the infant yet contained in it, which was fit to come forth, that so the coate *Amnios* being freed of this moisture, we might see whether there were any other humor contained in any other coate besides. But having done this with singular diligence and fidelity, we could see no other humor, nor no other separation of the membranes besides.

He shewes by three severall reasons that there is no *Allantoides*.

So that, from that time I have confidently held this opinion, that the infant in the wombe, is onely wrapped in two coates, the *Chorion* and *Amnios*. But yet not satisfied by this experience, that I might yet be more certaine concerning this *Allantoides*, having passed through the two former coates, I came to the infant, and I put a quill into its bladder, and blew it up as forceably as I could, so to trie, if by that blowing I might force the aire into that coate which we questioned, as some have written. But neither thus could I drive any aire from hence, through the navell into the controverted coate, but rather I found it to flie out of the bladder by the privities. Wherefore I am certainly perswaded that there is no *Allantoides*. Moreover I could never finde

finde nor see in the navell that passage called the *urachus*, which they affirme to be the beginning and originall of the coate *Allantoides*. But if it be granted that there is no such coate as the *Allantoides*, what discommoditie will arise hereof? specially seeing the sweate and urine of the infant may easily and without any discommoditie be received, collected and contained in the same coate, by reason of the small difference which is betweene them. But if any object that the urine by its sharpenesse and touching will hurt the infant; I will answer, there can be no so great sharpenesse in the urine of so small an infant, and that, if that there be any, it is tempered by the admixture of the gentle vapour of sweate.

Besides, if you consider, or have regard to the use of such an humor (which is to hold up the child, lest by its weight it breake the ties, by which it is bound to the wombe;) wee shall finde no humor more fit for this purpose than this serous, as which by its thicknesse is much more fit to beare up a weight, than the thinne and to liquide sweate. For so we see the sea or salt water carries greater weights without danger of drowning, than fresh rivers doe. Wherefore I conclude that there is no neede, that the urine should be kept and contained in one coate, and the sweate in another. The Ancients who have writ otherwise, have written from observations made in beasts. Wherefore we make but onely two coats the *Chorion* and *Amnios*, the one of which seeing it contains the other, they both so encompass the child, that they vest it on every side.

Fallopins in some sort seemes to be of this opinion; for he onely makes two coates; the *Chorion* and *Amnios*, but hee thinks the infant makes the water into a certaine part of the *Chorion*, as you may perceive by reading of his Observations. Both these coates are tied betweene themselves by the intercourse of most slender nervous fibers, and small vessels penetrating from the outer *Chorion* to the inner *Amnios*. Wherefore unless you warily handle these coates you may easily teare the *Amnios* in separating it. They are of the same temper with other membranes. Their use is different, for the *Chorion* is made both for the preservation of the vessels, which it receives from the wombe for the generating of the umbilicall veines and arteries, as also, to keepe whole and safe the parts which it invests.

Their temper
and use.

But the *Amnios* is to receive and containe the excrementitious and serous humors, which the child shut up in the wombe is accustomed to evacuate. But this coate is very thinne and soft, but strong and smooth, lest by its touch it might hurt the infant, whereupon it is called the Lamb-kinne coate.

CHAP. XXXVI.

Of the Navell.



He Navell followes these coates; It is a white body somewhat resembling the wreathen cord, or girdle of the *Franciscan Friers*, but that it hath not the knots standing so farre out, but onely swelling in certaine places, resembling a knot, onely lifted up on one side; it arises and takes its originall from a fleshie masse which we expressed by the name of

What the
navellis.

swelling *Cotyledones*, and goes into the midst of the lower belly of the infant, yea verily into the midst of the whole body, whose roote it is therefore said to be. For even as a tree by the roote, sucks nourishment from the earth, so the infant in the wombe drawes its nourishment by the navell. The greatnesse of it in breadth and thicknesse, equall the bignesse of the little finger. But it is a foote and a halfe long, so that children are brought forth with it, encompassing their middle, necke, armes, or legges. The figure of it is round. It is composed of two arteries, one veine and two coates. It hath these vessels from that great multitude of capillary veines and arteries, which are seene dispersed over the *Chorion*. Wherefore the veine entring in at the navell, penetrates from thence into the hollow part of the liver, where divided into two, according to *Galens* opinion, it makes the gate and hollow veines. But the arteries, caried by themselves the length of the navell, cast themselves into the *Iliaca*, which

Their Navell
is the Centre
of the body.

The figure
and compo-
sure.

Lib. de format;
factus in utero.

they make, as also all other, that from thence the vitall spirit may be carried by them over all the infant. It hath its two coates from the *Chorion*.

There is onely
one veine in a
childs navill,
but no
Urachus.

But seeing they are mutually woven and conjoynd without any *medium*, and are of a sufficient strength and thicknesse over all the navell, they may seeme to make the infants externall skinn and fleshie pannicle. I know very many reckon two umbilicall veines, as also arteries, and the *urachus* by, or through which the urine flowes into the coate *Allantoides*. But because this is not to be found in women, but onely in beasts, I willingly omit it, because I doe not intend to mention any parts, but such as belong to humane bodies. Yet if there be any, which can teach me, that these parts, which I thinke proper to brute beasts, are to be found in women, I will willingly confesse, and that to his credit, from whom I have reaped such benefit.

The other things that may be required concerning the navell as of its number, site, connexion, temper, and use, may easily appeare by that we have spoken before. For we have apparently set downe the use, when we said the navell was made for that purpose, that the infant may be nourished by it, as the tree by the roote, by reason of the continuation of the vessels thereof, with the preparing spermaticke vessels, made by God for that purpose, to whom be honour and glory for ever and ever. Amen.

The End of the third Booke.

THE



THE FOURTH BOOKE TREATING OF THE Vitall parts contained in the Chest.

The Preface.



Aving finished the first Booke of our Anatomy, in explanation of the naturall parts contained in the lower belly, now order requires, that we treat of the Brest; that so the parts in some sort already explained (I meane the veines and arteries) may bee dispatched after the same order and manner, without interposition of any other matter.

And besides also that we may the more exactly and chearefully shew the rest of the parts which remaine, as the head and limbs, knowing already the originall of those vessels which are dispersed through them. To this purpose, we will define what the Chest is, and then we will divide it into its parts. Thirdly, in these we will consider which parts containe, and which are contained, that so we may more happily finish our intended discourse.

CHAP. I.

What the Thorax, or the Chest is, into what parts it may be divided, and the nature of these parts.



He *Thorax* or Chest is the middle belly, terminated or bounded above with the collar-bones, below with the midriffe, before with the *Sternum* or brest, behind, with the twelve *Vertebra's* of the backe on both sides, with the true and bestarp ribs, and with the intercostall and intercartilagineous muscles. Nature hath given it this structure and composition, lest that being a defence for the vitall parts, against externall injuries, it should hinder respiration; which is no lesse needfull for the preservation of the native heate, diffused by the vitall spirits, and shut up in the heart, as in the fountaine thereof against internal injuries than the other forementioned parts against externall. For if the chest should have bin all bony, verily it had beene the stronger, but it would have hindred our respiration or breathing, which is performed by the dilating, and contracting thereof. Wherefore lest one of these should hinder the other, nature hath framed it, partly bony and gristlely, and partly fleshie. Some render another reason hereof, which is, that nature hath framed the chest, that it might here also observe the order used by it in the fabricke of things, which is, that it might conjoine the parts much disagreeing in their composure, as the lower belly, altogether fleshie, and the head all bony, by a *medium* partaker both of the bony and fleshie substance; which course wee see it hath observed in the connexion of the fire and water, by the interposition of the aire, of the earth and aire, by the water placed betweene them.

The contei-
ning parts of
the Chest.

Why nature
hath made
the Chest part
ly bony, partly
gistlely.

The number of
the bones of the
Sternon.

The Chest is divided into three parts, the upper, lower, and middle: the collar bones containe the upper, the midriffe the lower, and the *Sternon* the middle. The *Sternon* in *Galens* opinion is composed of seven bones, I beleeeve by reason of the great stature of the people that lived then. Now in our times you shall oft finde it compact of three, foure, or five bones, although we will not deny but that we have often observed it, (especially in young bodies) to consist of seven or eight bones.

Wherefore those who have fewer bones in number in their *Sternon*, have them larger, that they might be sufficient to receive the ribbes. This is the common opinion of the *Sternon*. Yet *Fallopins* hath described it farre otherwise, wherefore let those who desire to know more hereof, looke in his observations.

Cartilago scuti-
formis, the breast-
blade.

At the lower part of the *Sternon* there is a gristle, called commonly *Furcula*, and *Malum granatum*, or the Pomegranate, because it resembles that fruite; others call it *Cartilago scutiformis*, that is, the breast-blade.

It is placed there to be as it were a bulwarke or defence to the mouth of the stomacke, endued with most exquisite sense; and also that it should doe the like to that part of the midriffe, which the liver beares up in that place, situate above the orifice of the ventricule by the ligament comming betweene, descending from the lower part of the same gristle into the upper part of the liver.

The common people thinke that this gristle sometimes falls downe. But it so adheares, and is united to the bones of the *Sternon*, that the falling thereof may seeme to be without any danger, although oft times it may bee so moistened with watery and ferous humidities, with which the orifice of the stomacke abounds, that as it were soaked and drunke with these, it may be so relaxed, that it may seeme to be out of its place; in which case it may be pressed and forced by the hand, into the former place and seate, as also by applying outwardly, and taking inwardly astringent and drying medicines to exhaust the superfluous humiditie.

This gristle at its beginning is narrow, but more broad and obtuse at its end, somewhat resembling the round or blunt point of a sword, whereupon it is also called *Cartilago Ensiformis* or the swordlike gristle. In some it hath a double, in others a single point.

In old people it degenerates into a bone. Now because we make mention of this gristle, we will shew both what a gristle is, and how many differences thereof there be, that henceforward as often as wee shall have occasion to speake of a gristle, you may understand what it is.

What a Gristle
is.

A gristle is a simlar part of our bodies, next to a bone most terrestriall, cold, drie, hard, weighty and without sense, differing from a bone in drie nesse onely, the which is more in a bone. Wherefore a gristle being lost cannot be regenerated, like as a bone without the interposition of a *Callus*.

The differences
thereof.

The difference of these are almost the same with bones, that is from their consistence, substance, greatnesse, number, site, figure, connexion, action, and use. Omitting the other for brevities sake, I will only handle those differences which arise from site, use, and connexion. Therefore gristles, either adhere to the bones, or of, and by themselves make some part, as the gristles of the eyelids called *Tarsi*, of the *Epiglottis* and throatle. And others which adhere to bones, either adhere by the interposition of no medium, as those which come betweene the bones of the *Sternon*, the collar bones, the share and hanch bones and others; or by a ligament comming betweene, as those which are at the ends of the bastard ribs to the *Sternon* by the meanes of a ligament, that by those ligaments being softer than a gristle, the motions of the chest, may be more quickly and safely performed. The gristles which depend on bones, doe not onely yeeld strength to the bones, but to themselves, and the parts contained in them, against such things as may breake and bruise them. The gristles of the *Sternon*, and at the ends of the bastard ribs are of this sort.

Their twofold
use.

By this we may gather that the gristles have a double use, one to polish and levigate the parts to which that slippery smoothnesse was necessary for performance of their dutie; and for this use serve the gristles which are at the joynts, to make their motions the more nimble. The other use is to defend those parts upon which they are placed, from externall injuries, by breaking violent

violent assaults, by somewhat yeelding to their impression, no otherwise than soft things opposed against cannon shot. Wee will prosecute the other differences of gristles in their place, as occasion shall be offered and required.

CHAP. II.

Of the containing, and contained parts of the Chest.

He containing parts of the chest are both the skinnies, the fleshie pannicle, the fat, the breasts, the common coate of the muscles, the muscles of that place, the forementioned bones, the coate investing the ribbes and the *Diaphragma* or midriffe. The parts contained are the *Mediaſtinum*, the *Pericardium* or purse of the heart, the heart, the lungs & their vessels. Of the containing parts, some are common to all the body, or the most part thereof, as both the skins, the fleshie pannicle and fat. Of which being we have spoken in our first Booke, there is no neede now further to insist upon; Others are proper to the chest, as its muscles, of which we will speake in their place, the breasts, the forementioned bones, the membrane investing the ribs, and the *Diaphragma* or midriffe.

The division
of the chest
into its parts.

Wee will treat of all these in order, after we have first shewed you the way, how you may separate the skinnie from the rest of the chest. Putting your knife downe even to the perfect division of the skinnie, you must draw a straite line from the upper part of the lower belley, even to the chinne; then draw another straight line, overthwart at the collar bones even to the shoulder-blades; and in the places beneath the collar-bones: (if you desire to shunne prolixitie) you may at once separate both the skinnies, the fleshie pannicle, the fat, and common coate of the muscles; because these parts were shewed and spoken of in the dissection of the lower belley.

Yet you must reserve the breasts in dissecting of the bodies of women; wherefore from the upper parts of the breasts, as artificially as you can, separate onely the skin from the parts lying under it, that so you may shew the Pannicle which there becommeth fleshie and musculous, and is so spread over the necke, and parts of the face, even to the rootes of the haire.

CHAP. III.

Of the Breasts or Dugges.

He Breasts, as wee said, when we spoke of the nature of glandules, are of a glandulous substance, white, rare, or spongiouse, in maidens, and women that doe not give sucke, they are more solid and not so large.

Their substance,

Wherefore the bignesse of the Dugges is different, although of a sufficient magnitude in all. Their figure is round, somewhat long, and in some sort Pyramidall. Their composure is of the skinnie, the fleshie pannicle, glandules, fat, nerves, veines, and arteries, descending to them from the *Axillaris* under the *Sternum* betwixt the fourth and fifth, and sometimes the sixth of the true ribbes.

Magnitude,
Figure.

Composure

And there they are divided into infinite rivelets by the interposition of the glandules and fat, by which fit matter may be brought, to be changed into milke by the facultie of the dugges.

Wee will speake no more of the nature of glandules, or kernels, as having treated of them before; onely we will add this, that some of the glandules have nerves, as those of the breasts, which they receive from the parts lying under them, that is, from the intercostall, by which it comes to passe that they have most exquisite sense.

Which glandules have nerves and which have none,

Others want a nerve, as those which serve onely for division of the vessels, and which have no action, but onely use.

They be two in number, on each side one, seated at the sides of the *Sternon* upon the fourth fifth and sixth true ribs.

Their Connexion.

How the breasts and wombe communicate each with other.

Wherefore they have connexion with the mentioned parts with their body, but by their vessels with all other parts, but especially with the wombe by the reliques of the mamillary veins and arteryes, which descend downe at the sides of the breast-blade; in which place these veins insinuating themselves through the substance of the muscles, are a litle above the navill conjoined with the *Epigastricks*, whose originall is in some sort opposite to the *Hypogastricks*, which send forth branches to the wombe. By the meeting of these it is more likely that this commerce should arise, than from other and those almost capillary branches, which are sometimes seene to descend to the wombe from the *Epigastrick*.

Their temper.

*Recede & secrete.
Their action and use.

They are of a cold and moist temper, wherefore they say that the blood by being converted into milke * becomes raw, flegmaticke and white by the force of the proper flesh of the dugs. Their action is to prepare nourishment for the new borne babe, to warme the heart from whence they have received heat, and to adorne the breast.

The Nipples.

By this you may know that some Glandules have action, others use, and some both. At the top of the dugs there are certaine hillockes, or eminencies called teats or nipples, by sucking of which the child is nourished through certaine small and crooked passages; which though they appeare manifest to the sight, whilest you presse out the milke by pressing the dug, yet when the milke is pressed out they doe not appeare, nor so much as admit the point of a needle, by reason of the crooked wayes, made by nature in these passages, for this use, that the milke being perfectly made should not flow out of its owne accord against the nurses will. For so the seed is retained and kept for a certaine time in the Prostats.

CHAP. IIII.

* Of the Clavicles, or Coller bones and Ribs.

IF we should handle these parts after the common order, we should now treat of the Muscles of the Chest which move the arme, and serve for respiration, and which first offer themselves to our sight.

But for that they cannot be fitly shewed, unlesse wee hurt the muscles of the shoulder blade and necke, therefore I thinke it better, to deferre the explanation of these muscles untill such time as I have shewed the rest of the contained and containing parts, not onely of the chest, but also of the head, that having finished these we may come to a full demonstration of all the rest of the muscles, beginning with those of the head, which wee first meet with, and so prosecuting the rest even to the muscles of the feet, as they shall seeme to offer themselves more fitly to dissection, that so, as much as lyes in us, we may shunne confusion.

Wherefore returned to our proposed taske, after the foresaid muscles come the Collar bones, the *Sternon* and ribs.

But that these parts may be the more easily understood, wee must first know what a bone is, and whence the differences thereof are drawne.

What a Bone is.

Therefore a bone is a part of our body most terrestriall, cold, dry, hard, wanting all manifest sense, if the teeth be excepted.

A double sense
Lib. I. de Locis
affectis.

I said manifest sense, that you may understand that the parts have a double sense of touching, the one manifest, such as resides in the flesh, skin, membranes, nerves, Teeth and certaine other parts; the other obscure, yet which may suffice to discern the helping and hurting tactile qualityes, such sense the bowels and bones have; for very small fibers of the nerves are disseminated to these parts by mediation of their coat, or membrane, I say so small, that they canne scarce be discerned by the eyes, unlesse (as *Galen* saith) by plucking such coats away from the parts.

But

But it is no marvaile if nature would have these parts in like manner to have such small veines, contrary to the lungs and most part of the Muscles, onely to yeild so much nourishment to the part, as should be needfull; for seeing the substance of the bones is cold, hard, dense and solid, it wastes the lesse.

Why the bones have such small veines.

Wherefore they need not so much blood for their nourishment, as the hot and soft parts; and besides the lesser bones have neither veines, nor arteries, but draw fit nourishment, onely by the force of the attractive faculty implanted in them.

The differences of bones are taken from many things, as from their *Apophyses*, *Epi-physes*, gristles, necks, heads, solidity, cavity, eminencies, marrow, consistence, dignes, number, figure, site. Wee will prosecute all these as they shall offer themselves in the demonstration of the bones; to which doctrine we will give a beginning at the Clavicles or collar bones.

Whence the difference of bones may be taken.

The Clavicles are two very hard and solid bones, without any great or notable cavity, situate on each side betwixt the side and upper part of the *sternon* and top of the shoulder-blade, for the strength and stability of these parts, whence they take the name of *Clavicula* Clavicles (from the Greeke *κλεις*, which signifies a key or any other bar or fastning of a doore.) They carry the shape of a surgeons Levatory.

The Clavicles or collar bones

But you must note that the Clavicles seemes to be fastned to the *sternon* by the mediation of a gristly bone. Moreover the space and cavity contained within the Collar bones is called by the Latines *Iugulum*, by the French the upper *furcul*, because the jugular veines passe that way; it sticks to the upper proësse of the shoulder by a Gristle which *Galen* calls the small gristle bone, although it be nothing else but a pro-

Lib. 13. du xij^e part. Cap. 11.

duction of the *Os Iuguli*. For the *sternon*, which we said is framed of diverse bones, as sometimes 3, sometimes 4, 5, 6, 7, and sometimes 8, you must note they are very spongy and full of pores, and of a farre softer consistence than the collar bones, wherefore more subject to corruption; besides they are mutually joined by interposition of muscles. Their use is to be as a shield to defend the vitall parts.

The Ribs are 24. in number, on each side 12, seven of these are called true or perfect ribs, because they make a circle, at the one end joined to the *sternon*, on the other to the *vertebra's*; the other are called bastard or short ribs because they fall short in their way and come not to the *sternon*; but they are fastened on the fore-side to the *sternon* by gristles and ligaments, but on the back part to the transverse *vertebra's* of the back-bone, and to the sides of the said *vertebra's*. But the short ribs are onely knit to the *vertebra's*, wherefore that part of the *vertebra's* is called the root of the ribs.

The Ribs.

The exterior or fore-part of the Bastard or short ribs is gristly, that they should not be broken, and that they might be the easier lifted up in the distensions of the stomach filled with meat. They are of a consistence sufficiently hard, yet more towards their root, than at the *sternon*, where they come nearer together, and are more hardly broken; they are smooth both within and without, but in the midst they have some signe of being double, or hollow to receive the veines and arteryes, which nourish their bony substance; they are fashioned like a bow; their use is the same with the *sternon*, and besides to carry and strengthen the muscles serving for respiration.

Their consistence.

CHAP. V.

The Anatomical Administration of the Sternon.



He Coate investing the ribs, which the common Anatomists call *Pleura*, is the last of the containing parts of the Chest, which because it lies hid in the inner part thereof, it cannot be showne unlesse by pulling asunder of the *Sternon*; wherefore wee must now shew the manner of opening the *Sternon*, that hereby we may not violate the originall or interion of any of the muscles. Wherefore first you must understand that he which will shew in their proper place the originall and insertion of the pectorall muscles, of the *Mastoides*, of the two muscles of the bone *Hyois*, of the Muscles *subclavii* and *intercostalaginei*,

vilaginei, ought first of all to separate all the pectorall muscles from the *sternon* and the gristles from the true ribs; then to cut the ligaments, next the bones themselves, even from the sixth true rib to the clavicles.

And then shewing the *Mediastinum* stretched under the *sternon* all the length thereof, he must separate the *sternon* with his knife and bend it up to the clavicles, and there cut it, reserving together with it the foure muscles, that is, the two *Mastoides* and the two moving the bone *Hyois*, because they either wholly or for the most part arise from the *sternon*.

Lastly the Clavicles being somewhat thrust upwards, the Gristles must on each side be turned outwards towards the arme; that so the containing parts of the chest may not onely lye open to view and be easily shewed, but also the muscles may bee contained in their place, untill they come to be shewed in their order.

And because the Collar bones must be lifted up very high, that the recurrent nerves may be more easily scene and the distribution of the veines and arteries, the two small subclavian muscles one on each side must bee shewne by the way, who have their originall from the inner and fore part of the Clavicles, and an oblique descent to the *sternon* towards the gristle of the first rib.

For the Clavicles cannot be thus separated, but that these muscles must be violated and spoiled. Also you may divide the *sternon* in the midst, that you may shew the inward pectorall muscles whole, having separated the muscles which arise from the upper part. All which things being performed as they ought, we must come to the Coat investing the ribs and then to the *Mediastinum* as arising from it.

CHAP. VI.

Of the Pleura, or coat investing the Ribs.

What the
membrane in-
vesting the
Ribs is,



He *Tunica subcostalis*, or coat investing the ribs being the last of the containing parts of the Chest, is a large and a broad membrane answerable in proportion of use and action to the *Peritonaeum* of the lower belly. For as the *Peritonaeum* generally and particularly covers all the naturall parts, binding and holding them in their places, so this coat invests all the vitall parts in generall because it is stretched over all the inside of the Chest, but in particular, whilst it gives each a coate from it selfe.

Its originall.

It hath its originall from the *Periostium*, (or as others will have it from the *pericranium*,) investing the *vertebra's* of the Chest at the roots of the ribs. Wherefore it stickes very fast to the ribs, scarce to be separated, as also to all the parts bounding the Chest, and contained in it.

Vesalius reprehends *Galen*, because he said, that this was double on both sides; yet *Columbus* defends *Galen*, and verily it is scene to be double in the inner part of the Chest, under the ribs and the muscles of the ribs, that in that space there may bee way for the veines, arteryes and nerves.

Whether, as
there is a two-
fold pleurisie,
so also a
double Pleura

Some have made it two fold, and divided it into the internall and externall; as those which have made two sorts of pleurisy, the true and bastard; placing the externall above the Ribs and intercostall muscles; but the internall under the Ribs, muscles, *Diaphragma* and *sternon*.

The Magni-
tude and
figure.

But we to shun ambiguity, intend only to prosecute those things which are manifest to the eyes; wherefore we say that the ribs are lined on the inside with a double coate; one which immediatly and firmly stickes to them on every side called the *Periostium*, which is common to them and other bones.

The other which lyes upon that *Periostium* and on the inside invests all the ribs, whence it is called the *subcostalis tunica*. The substance, temper and composure are the same, as in other membranes. The magnitude in length, as also the figure is the same with the compasse of the inner part of the chest; the thicknesse of it is very little. This coat is commonly called the *Pleura* from the name of the part which it covers or lines (for the Greekes call the ribs *πλευραι*,) and in like manner which happens betwixt

betwixt the *Periostium* and this *Pleura*, is called either a true or bastard *Pleurisy*.

CHAP. VII.

Of the *Mediastinum*

NOW wee must speake of the parts contained in the Chest, seeing we have already handled the containing, beginning with the *Mediastinum* as being a part which in dissection first presents it selfe to our sight. The *Mediastinum* is of the same substance, thicknes, composure, number, temper as the *Pleura*. For the substance of the *Mediastinum* is membranous, and though it be stretched all the length of the Chest, yet it is of a small thicknes, receiving veines, nerves and arteryes from all the parts to which it is knit, like as the *Pleura* doth; but especially from the mamillary vessels descending under the *sternon*. The substance and magnitude

It is in number one, but it is made of two membranes produced from the sub-costall, for this ascending on each side by the hollownesse of the chest to the *sternon*, and then at right angles it is reflected to the bodyes of the *vertebra's*, whence the *Pleura* hath its originall.

In that reflection there is so much distance between each membrane, as may bee sufficient to receive 2 fingers. For otherwise, seeing that they cannot penetrate through the hart, it was fit each side of the *Pleura* should turne to the *Pericardium*, that so they might arive at the appointed place without offence. Nether yet is that space void and empty, but woven with many small nervous fibers; *Columbus* adds, that, that place is often filled with a certaine humor besides nature, which you may draw out, or evacuate by opening the *sternon*.

Yet I would gladly learne of *Columbus*, by what signes we may know that such an humor is contained there. For the figure, the *Mediastinum* with the *Pleura* on each side represents the figure of a Leather bottle, whose flat side is the *Mediastinum*, whose other side the *Pleura*; the bottome that part of the *pleura* which is next the Midriff, the mouth the upper part of the *Pleura* at the first ribs. We shewed the site and connexion of the *Mediastinum*, when we declared its originall. The figure.

The use thereof is to separate the vitall parts, as it were into 2 cells, the right and left, that if peradventure it happen that the one be hurt, the creature may live by the benefit of the other. The use.

And it hath another use which is to prop and hold up the *Pericardium*; that it fall not uppon the heart with its weight, but tossed with the motions of the heart and Chest, it may move to this or that side.

CHAP. VIII.

Of the Diaphragma or Midriffe.

ALTHOUGH the Midriffe may seeme to be accounted rather a part containing than contained, yet for commodities sake we have deferred the demonstration thereof till now. Therefore it is a muscle round and long, terminating the lower part of the Chest. What the midriffe is.

It is of the same substance, composition and temper, as the muscles of the *Epigastrium*, it is made of two coats the lower whereof is from the *Peritoneum*, and the upper from the *Pleura*. Which getting to them flesh but not there, but in their circumference, by the benefit of the blood brought thither by the veines and arteries distributed through it, turne into a muscle, whose middle is nervous and membranous, but the extremities by which it is inserted, one while fleshy as in that part next to the bastard ribs, another while tendonous, as where it touches the first & second *vertebra's* of the loines, for it ends in them by 2 tendons manifest enough. It is one in number, interposed with an oblique site betwixt the naturall and vitall parts. Its substance, composition &c.

Connexion. It hath connexion with the lower part of the *sternon* and short ribs, and the two first *vertebra's* of the loines, but by its coats and vessels with the parts from whence it received them.

Quantity. The extent thereof is equall to the compasse of the lower part of the Chest. The length of it is from the breast blade even to the first and second *vertebra* of the loines. The thicknes is diverse, for it is far thicker in its fleshy extremity, than in its nervous originall.


Action. The Action thereof is to helpe the expulsion of the Excrements by the mutuall assistance of the *Epigastrick* muscles, but the chiefe use is for respiration, of which it is one of the prime instruments. This partition the Ancients called *Phrenes*, because the inflammation thereof caused like symptomes as the inflammation of the Braine, by reason of the large nerves on each side one which come to it directly & primarily from the third, fourth and fifth *vertebra* of the neck. This muscle differs from other muscles, specially in figure. It is preforated in three places, to giue way or passage to the ascendent Hollow-veine, to the Artery *Aorta*, and the Gullet.

Why the
Diaphragma
was called
Phrenes.

CHAP. IX.

Of the Lungs.

Their substance.
quantity.
The Lobes thereof.

 The Lungs are of a soft substance and flesh, rare and like a sponge, of a various colour pale red, their quantity is sufficiently large, for most commonly they are divided into 4 lobes disjoined with a manifest and visible division, on each side two, whereby they may be the more easily opened and contracted, and the aire may the better enter.

Besides also in large bodyes, who have a very great chest, there is found a fifth lobe, arising from the second lobe of the right side, as a cushion, or bolster to beare up the hollow veine ascending from the midriffe to the heart.

In little men who have a shorter Chest, because the Heart is so neere as to touch the *Diaphragma*, this Lobe is not seene, yet it is alwayes found in Dogges.

Figure.

The Lungs represent the figure or shape of an Oxes foot, or hoof, for like it they are thicker in their *basis*, but slenderer in their circumference, as you may see in blowing them up, by the weazon, with your mouth or a paire of bellows. They are compounded of a coate comming from the *Pleura*, which on each side receives sufficient number of nerves from the sixth conjugation; and also of the *Vena arteriosa* comming from the right ventricle of the heart, and the *Arteria venosa* from the left, as shall be shewed in the Anatomy of the heart; besides the *Aspera arteria* or Wezon comming from the throat, and lastly its owne flesh, which is nothing else than the concretion of cholerick blood poured out like foame about the divisions of the fore-said vessels, as we have said of other parts.

Composition.

The body of the Lungs is one in number, unlesse you will divide it into two, by reason of the variety of its site, because the Lobes of the Lungs stretched forth into the right & left side doe almost involve all the heart, that so they may defend it against the hardnes of the bones which are about it; they are tyed to the heart, cheifly at its *basis*, but to the roots of the ribs and their *vertebra's* by the coat it hath from thence; but by the vessels to these parts from whence they proceed. But oft times presently from the first and naturall conformation they are bound to the circumference of the ribs by certaine thin membranous productions which descend from thence to the Lungs, otherwaies they are tyed to the ribs by the *Pleura*.

The sticking
of the lungs to
the Ribs.

Their nourishment.

The nourishment of the Lungs is unlike to the nourishment of other parts of the body; for you cannot find a part equally rare, light and full of aire, which may be nourished with blood equally thin and vaporous. In temper they incline more to heat than to cold, whether you have regard to their compolure of cholerick blood, or their use, which is to prepare and alter the aire that it hurt not the heart by its coldnes. The Lungs is the instrument of voice and breathing by the Weazon or windpipe. For the Lobes are the instruments of voice, and the ligaments, of respiration. But the

Larynx

Larinx or Throtle is the chiefe instrument of the voice, for the Weazon first prepares the voice for the Throtle, in which it being in some measure formed is perfected in the Pallate of the mouth, as in the upper part of a lute, or such like instrument, by the help of the *Gargareon* or *uvula* as a certaine quill to play withall.

But as long as one holds his breath, he cannot speak; for then the muscles of the *Larinx*, Ribs, the *Diaphragma* and the *Epigastrick* muscles are pressed downe, whence proceeds a suppression of the vocall matter, which must be sent forth, in making or uttering a voice.

Nature would have the Lungs light for many reasons, the first is that seeing they are of themselves immoveable, they might be more obsequious and ready to follow the motion of the chest, for when it is straitened, the Lungs are straitened and subside with it; and when it is dilated, they also are dilated, and swell so big that they almost fill up all the upper capacity thereof.

Why the lungs are light.

Another cause is that by this their rarity they might more easily admit the entering Aire, at such times as they have much, or suddaine necessity, as in running a race.

And lastly, that in Pleurifies and other purulent abscesses of the Chest the Pus or matter poured forth into the capacity of the Chest may be sucked in by the rare substance of the Lungs, and by that meanes the sooner sent forth and expectorated.

The use of respiration is to coole and temper the raging heat of the Heart. For it is cooled in drawing in the breath by the coole aire, and in sending out thereof by avoiding the hot fuliginous vapour. Therefore the Chest performes two contrary motions, for whilest it is dilated it drawes in the encompassing aire, and when it is depressed it expels the fuliginous vapour of the Heart; which any one may easily perceive by the example of a paire of Smithes bellowses.

The use of Respiration, or breathing.

CHAP. X.

Of the Pericardium or purse of the Heart.



The *Pericardium* is as it were the house of the Heart, which arising at the basis thereof (either the ligaments of the *vertebra's* situate there or els the vessels of the heart yeilding it matter) is of a nervous, thick and dense substance without any fibers. It retains the figure of the Heart, and leaves an empty space for the heart to performe its proper motions. Wherefore the bignes of the *Pericardium* exceeds that of the heart.

Whence it hath its matter.

It consists of a double coate, one proper of which wee have spoken, another common coming from the *pleura*; and also of veines, arteries and nerves; the vessels partly coming from the mamillary, partly from the *Diaphragma*, chiefly there where it touches it; the nerves come on each side from the sixth conjugation.

It is onely one, placed about the heart and annexed to it at the Basis thereof by its membranes, to the originall of the Lungs, and the *vertebra's* lying under them, and by the vessels to the parts from whence it received them. It is of a cold and dry temper as every membrane is.

Number and connexion.

The use thereof is to cover the heart, and preserve it in its native humidity, by a certaine naturall moysture contained in it, unles you had rather say that the moisture we see contained in the *Pericardium*, is generated in it after death by the condensation and concretion of the spirits. Although this seemes not very likely; because it growes and is heaped up in so great quantity in living bodyes, that it hinders the motion of the heart, and causes such palpitation or violent beating thereof; that it often suffocates a man.

Viz

For this Palpitation happens also to hearty and stout men, whose harts are hot, but blood thin and waterish by reason of some infirmity of the stomach or Liver; and this humour may be generated of vapours which on every side exhale into the *pericardium* from the blood boiling in the ventricles of the heart, where kept in by the density thereof, they turne into yellowish moisture, as we see it happens in an Alembek.

From whence the matter of the watery humor contained in the *Pericardium*.

Nature would have the *pericardium* of a dense and hard consistence, that by the force thereof

The Consistence.

thereof the heart might bee kept in better state ; for if the *Pericardium* had beene bony , it would have made the heart like iron by the continuall attrition ; on the contrary, if it had beene soft and fungous, it would have made it spongy and soft like the Lungs.

CHAP. XXX.

Of the Heart.

What the heart is, and of what substance.



He Heart the chiefe mansion of the Soule, the organe of the vitall faculty, the beginning of life, the fountaine of the vitall spirits, & so consequently the continuall nourisher of the vitall heate, the first living and last dying, which because it must have a naturall motion of it self, was made of a dense solide and more compact substance than any other part of the body.

The three sorts of fibers of the Heart.

The flesh thereof is woven with three sorts of fibers, for it hath the right in the inner part descending from the *basis* into the point, that they might dilate it, and so draw the blood from the hollow veine into the receptacles thereof, and the breath or aire from the lungs by the *Arteria venosa*; it hath the transverse without, which passe through the right at right angles, to contract the Heart, and so drive the vitall spirits into the great Artery *Aorta*, and the cholericke blood to the Lungs by the *vena arteriosa*, for their nourishment; It hath the oblique in the midst to containe the Aire and blood drawne thither by the forementioned vessels untill they be sufficiently elaborate by the heart.

All these fibers doe their parts by contracting themselves towards their originall, as the right from the point of the heart towards the *basis*, whereby it comes to passe that by this contraction of the fibers the heart dilated becomes shorter, but broader, no otherwise than it is made more long and narrow by the contraction of the transverse, but by the drawing of the oblique it is lessened in that part which looks towards the *vertebra's*, which chiefly appears in the point thereof.

The magnitude

It is of an indifferent bignes, but yet in some bigger, in some lesse according to the diverse temper of Cold or hot men, as wee noted in the liver.

Figure.

The figure thereof is Pyramidall, that is, it is broader in the *basis*, and narrower at his round point.

Composition

It is composed of the most dense flesh of all the body, by the affusion of blood at the divisions and foldings of the vessels, and there concrete; as it happens also to the other Entrailles. For the blood being there a litle more dryed, than that which is concrete for the making of the Liver, turns into a fleshy substance more dense than the common flesh, even as in hollow ulcers, when they come to a cicatrize.

The proper vessels.

It hath the Coronall veines and arteryes, which it receives either on the right side from the hollow veine, or on the left from the *basis* at the entranc of the Artery *Aorta*.

The Nerves,

You cannot by your Eye discern that the Heart hath any other Nerves than those which come to it with the *Pleura*.

Yet I have plainly enough observed others in certaine beasts, which have great Hearts, as swine; they appeared seated under the fat which covers the vessels, and *basis* of the heart, lest the humid substance of these parts should be dissolved and dissipated by the burning heat of the Heart. Whereby you may perceive that the heat of the heart is different from the Elementary heat, as that which suffers fat to grow about this Entraille, where otherwise it doth not concrete unlesse by cold or a remisse heat, which thing is chiefly worth admiration.

Number and site.

The Heart is one alone, scituate most commonly upon the fourth *Vertebra* of the Chest, which is in the midst of the Chest. Yet some thinke that it inclines somewhat to the left side because we there feele the motion or beating thereof; but that happens by reason of its left ventricle, which being it is filled with many spirits, and the beginning of the arteryes, it beats far more vehemently, than the right. It required that seat by the decree of Nature, because that Region is the most safe and armed,

armed, and besides it is here on every side covered as it were with the hands of the Lungs.

It hath connexion with the fore mentioned *Vertebra's*, but by the parts composing it, with those parts from whence it hath them; with the Lungs by the *Vena arteriosa*, and the *Arteria venosa*, and lastly with all the parts of the body by the Arteries which it sends to them all.

Connexion.

It is of a hot and moist temper, as every fleshy part is. The action thereof is, first to prepare the blood in its right ventricle, for the fit nourishment of the Lungs, for from hence it is that *Galen* saith; this right ventricle was made for the necessity of the lungs. Secondly to generate the vitall spirits in its left ventricle for the use of the whole body. But this spirit is nothing els than a certaine middle substance between aire and blood fit to preserve and carry the native heat, wherefore it is named the vitall, as being the author and preserver of life. In the inner parts of the heart there present themselves to our consideration the ventricles and the parts contained in the ventricles and between them; such are the *Valvula* or valves, the vessels and their mouthes, their distribution into the lungs, the wall or partition, and the two productions or Eares of the heart; which because they are doubtful, whether they may be reckoned amongst the externall or internall parts of the heart, I will here handle in the first place.

Temper and action.

What the vitall spirit is.

Therefore these *Auricle* or Eares are of a soft and nervous substance, compact of three sorts of fibers, that so by their softnesse they might the more easily follow the motions of the heart, and so breake the violence of the matters entring the heart with great force when it is dilated. For otherwise by their violent and abundant entrance they might hurt the heart, and as it were overwhelme and suffocate it; but they have that capacity which we see given by nature, that so they might as it were keep in store the blood and aire, and then by litle and litle draw it forth for the use or necessity of the heart. But if any enquire, if such matters may be drawne into the heart by the only force of the *Diastole ad fugam vacui*, for avoiding of emptinesse; I will answer that that drawing in, or attraction is caused by the heat of the heart; which continually drawes these matters to it no otherwise than a fire drawes the adjacent Aire, and the flame of a candle the tallow which is about the weake for nourishments sake. Whilest the heart is dilated it drawes the aire, whilest it is drawne together or contracted, it expells it. This motion of the heart is absolutely naturall, as the motion of the Lungs is animall. Some adde a third cause of the attraction of the heart; to wit the similitude of the whole substance. But in my judgment, this rather takes place in that attraction which is of blood by the *vena coronales* for the proper nourishment of the heart, than in that which is performed for attraction of matters for the benefit of the whole body.

The *Auricula Cordis*, or eares of the heart.

These eares differ in quantity, for the right is far more capacious than the left because it was made to receive a greater abundance of matter. They are two in number, on each side one, scituate at the *Basis* of the heart; The greater at the entrance of the hollow veine into the heart, the lesse at the entrance of the *veinous* and of the great Artery with which parts they both have connexion. We have formerly declared what use they have; that is, to break the violence of the matters, and besides to bee stayes or props to the *Arteria venosa* and great Arterye, which could not sustaine so rapid and violent a motion as that of the Heart by reason of their tenderesse of substance.

Their magnitude and number.

Their use.

Of the ventricles of the Heart.

The ventricles are in number two, on each side one, distinguished with a fleshy partition strong enough, having many holes in the superficies, yet no where pearcing through.

The partition betweene the ventricles of the Heart.

The right of these ventricles is the bigger and incompassed with the softer and rarer flesh; the left is the lesser but is engirt with a threefold more dense and compact flesh; for the right ventricle was made for a place to receive the blood brought by the hollow veine, and for distributing of it, partly by the *vena arteriosa* into the Lungs for

Why the right ventricle is more capacious and less compact.

for their nourishment, partly into the left ventricle, by sweating through the wallor partition, to yeild matter for the generation of the vitall spirits.

Why the right ventricle is more capacious and lesse compact.

Therefore because it was needfull there should be so great a quantity of this blood, it was likewise fit that there should be a place proportionable to receive that matter. And because the blood which was to bee received in the right ventricle was more thicke, it was not so needfull, that the flesh to containe it should be so compact; but on the contrary the arterious blood and vitall spirit have need of a more dense receptacle, for feare of wasting and lest they should vanish into aire; and also lesse roome that so the heat being united might become the stronger, and more powerfully set upon the elaboration of the blood and spirits.

The action of the right ventricle.

Therefore the right ventricle of the heart is made for the preparation of the blood appointed for the nourishment of the Lungs, and the generation of the vitall spirits, as the lungs are made for the mitigation, or quallifying of the Aire. Which works were necessary, if the Physicall Axiome bee true; That like is nourished by like, as the rare and spongiouse lungs with more subtle blood; the substance of the heart grosse and dense, with the veinous blood as it flowes from the Liver, that is grosse.

And it hath its Cororall veines from the Hollow veine, that it might thence drawe as much as should be sufficient.

The action of the left ventricle.

But the left ventricle is for the perfecting of the vitall spirit, and the preservation of the native heat.

Of the Orifices and Valves of the Heart.

The uses of the foure orifices of the Heart.

There be foure Orifices of the heart, two in the right, & as many in the left ventricle; the greater of the two former gives passage to the veine, or the blood carried by the hollow veine to the heart; the lesser opens a passage to the *vena arteriosa* or the cholerick blood carryed in it for the nourishment of the lungs.

The larger of the two other makes a way for the distribution of the Artery *Aorta* and the vitall spirit through all the body; but the lesser gives egressive and regressive, to the *Arteria venosa*, or to the aire and fuliginous vapours. And because it was convenient that the matters should bee admitted into their proper ventricles by these orifices, by the *Diastole*, to wit, into the right ventricle by the greater orifice, and into the left by the lesser, and because on the contrary it was fit that the matters should be expelled by the *systole* from their ventricles by the fore-mentioned orifices.

The valves.

Therefore nature to all these orifices hath put cleaven valves, that is to say, fixe in the right ventricle, that there might bee three to each orifice; five in the left, that the greater orifice might have three, and the lesser two, for the reason we will presently give.

How they differ.

These valves differ many wayes; first in action; for some of them carry in matter to the heart, others hinder that which is gone out that it come not back againe; Secondly they differ in site, for those which bring in have membranes without, looking in; those which carry out have them within looking out. Thirdly in figure, for those which carry in, have a pyramidall figure, but those which hinder the coming back againe are made in the shape of the Roman letter C. Fourthly in substance, for the former for the most part are fleshy, or woven with fleshy fibers into certaine fleshy knots ending towards the point of the heart. The latter are wholly membranous.

Number.

Fifthly they differ in number, for there be only five which bring in, three in the right ventricle at the greater orifice, and two in the left at the lesser orifice; those which prohibite the coming back are fixe in each ventricle, three at each orifice. Lastly they differ in motion; for the fleshy ones are opened in the *Diastole* for the bringing in of blood and spirit, and contrarywise are shut in the *systole*, that they may containe all or the greater part of that they brought in. The membranous on the contrary are opened in the *systole* to give passage forth to the blood and spirits over all the body, but shut in the *Diastole*, that that which is excluded might not flow backe into the Heart. But you shall observe that nature hath placed onely two valves at the Orifice of the *Arteria Venosa*, because it was needfull that this Orifice should bee alwayes open, either wholly, or certainly a third parte thereof; that


Why there be onely two valves at the *Arteria venosa*

the

the Aire might continually be drawne into the heart by this orifice in inspiration, and sent forth by expiration in the contraction of the heart. Whereby we may gather this, that there is but one third part of that Aire we draw into the heart in breathing, sent forth againe in the forme of vapour in expiration, because nature would have but one third part of the orifice to ly open for its passage out. Therefore the expiration or breathing out, and the *systole* of the heart and arteryes, is shorter than the inspiration, so that we may truly say, that the inspiration, or drawing the breath in, is equally so long as the expiration is together with the rest, which is in the midst between the two motions.

CHAP. XII.

Of the Distribution of the Vena arteriosa, and the Arteria venosa.

AVING hitherto shewed the originall of each of the vessels of the Heart, we must now speake of their distribution. The *Vena arteriosa*, or the arterious veine, and the *arteria venosa* or the *veinous arterie* each proceeding out of his proper ventricle, that is, the right and left, are divided into two large branches; one of which goes to the right and the other to the left hand, the one lying crosse wayes over the other, the veine alwaies riding over the arterye, as you may understand better by the sight of your eyes, than by reading of bookes. These branches at their entrance of the lungs are divided into two other large branches, and each of them goe to his peculiar Lobe of the lungs; and these againe runne almost into infinite other branches, dispersed in three places over the Lungs.

The Artery
alwaies lyes
under the
veins.

These vessels have acquired their names by reason of that transmutation of consistence, whereby the composure of a veine degenerates into an arterye, and that of an arterye into a veine, for the commodity of life. For this is a miracle of prudent nature to change the coats of the vessels of the lungs; producing a veine which in its body should imitate an arterye, and an arterye which should represent a veine: For if the *vena arteriosa* should have retained its proper consistence, the arterious blood which is carried by it from the heart to nourish the lungs, might by reason of its subtilty penetrate through, and flow away by reason of the rarity of the *veinous texture*; and so nature should never have attained her conceived end, that is, to nourish the Lungs, by reason of the continuall motion of their contraction and dilatation.

A twofold
reason why
the veine was
made Arterious,
or like an
Artery.

For nourishment cannot be assimilated to the part, unlesse it be put and cleave to it. Wherefor it was fit, that nature should make the body of this veine solid, that it might be immoveable, unshaken and stubborn (in respect of a veine which by its softnesse would have been too obsequious and yeilding to the agitation of the Lungs) that so it might have nourishment, which might be diffused into all parts thereof, and which might neither bee drawne by its *Diastole*, nor driven back into the heart by its *systole*. But the arterye hath the consistence of a veine, that by that *veinous softnesse* according to the necessity of nature it might be the more readily contracted and dilated, to bring the Aire in and carry the vapours forth of the heart. Here wee meet with a difficulty, which is, by what way the blood is carried out of the right into the left ventricle of the heart.

Why the Artery
was made
like a veine,

Galen thinks that there be certaine holes in the partition made for that purpose, and verily there are such, but they are not perforated. Wherefore Columbus hath found out a new way, which is, that the blood is carried to the lungs by the *vena arteriosa*, and there attenuated; and carried from thence together with the aire by the *Arteria venosa* to the left ventricle of the heart; this he writes truly very probably. Botallus in his treatise *De Catarrho* hath found out a third way, to wit a veine, which he calls *Arteriarum nutritrix*, that is, The nurse of the Arteries, which creepes a litle above the Coronall to the right eare of the Heart, and then goes into the left eare thereof. But yet I am very much afraid, that this veine observed by Botallus, is that vessel observed by Fallopius, whereby the *Vena arterialis* is joined to the Aorta, &c. by which all the vitall blood is carried for the forming and nourishment of the lungs whilest

By what way
blood may
passe out of the
right into the
left ventricle,

The veine called
the nurse
of the Arteries

Fallopius
called Arteria
nutritrix.

Gal. lib. 15 de usu part. cap. 6. whilest the infant is yet in the wombe. Of which also *Galen* makes mention, but it had laine hid from his time to this day, but that *Fallopins* raised up the memory of it againe.

CHAP. XIII.

The distribution of the ascendent Hollow veine.

Gal. lib. 15 de form. fetus.

The greater descendent branch of the hollow veine.

The upper branch of the hollow veine is the lesse.

Vena phrenica Coronalis.

Vena Arteriosa

Vena Azygos, or sine pari.

This *Azygos* sometimes two

How the matter of a pleurisie may be evacuated by urine.

Intercostalis.

Mammaria.

Cervicalis.

Musculosa.

In what place cupping glasses may be applyed in a bastard Pleurisie.



He Hollow veine rising out of the gibbous part of the Liver, and resembling (according to *Galen*) the body of a tree, is divided into two notable branches, but not of a like bignes. For the greater, by the hind part of the Liver upon the back bone and by the way, receives certaine other branches from the substance of the Liver which entred not into the great trunk with the rest. You may often see this descendent branch even to the backe bone upon which it lyes in this its descent, covered with the substance of the liver, so that it may seeme that branch proceeds not from that common trunk together with the ascendant, although indeed it alwayes doth. But the lesser branch ascends to the upper parts, and is distributed after this manner following. For first arising into the midriffe it bestowes two small veines upon it, on each side one, which from that part are called *Phrenica*. But from thence when it arrives at the right Eare of the Heart, it makes the *Coronales*, the Coronall or Crowne veines, which compasse the basis of the heart in manner of a Crowne. Thirdly entring somewhat more deeply into its right Eare, in its greater part it produces the *vena arteriosa*. Fourthly lifted up above the heart, on the right side it produces the veine *Azygos* or *sine pari* (that is, without a fellow) which descending to the fourth rib, (reckoning from above downwards) nourisheth the intercostall muscles and also the membranes of the 8 lower ribs, on both sides, sending a branch into each of the muscles at the lower part of the rib, which may bee sufficient for their nourishment. Besides also oftentimes, especially in little men, this veine *Azygos* nourishes all the spaces between all the ribs by the like branches, which it sends in the same manner to the foure upper ribs. Moreover also this *Azygos* sometimes, though but seldome, is found double, that is, on each side one. Here you must chiefly observe, that this veine after it hath nourished the spaces between the lower ribs, in its remainder descends under the *Diaphragma* and is joined on the left side to the Emulgent vein; by which it is manifest how an Abscesse, may be critically evacuated by the urine, in a pleurisy. But this same *Azygos* is more depressed on the right side, and meets with the *Vena lumbares*, but especially with one of them, which goes downe to the thigh, whereby *Fallopins* gathers that it is very convenient in the beginnings of Pleurisy to open the *vena poplitea*, the veine of the Ham. Fifthly above the *Azygos* (when it is wanting there) it sends forth the branch called *Intercostalis* to the other spaces between the upper ribs; although this is sometimes seene to come from the *Axillares*, which *Sylvius* calls the *subclavia*. Sixtly it brings forth the *Mammaria* so called, because in their greater part they run to the dugs between the fourth and fifth ribs, for the uses formerly mentioned; men and women have on each side one of these coming from the *Subclavia*: They are sometimes found to proceed by a certaine common orifice from the hollow veine, before it be divided into the *Subclavian* branches, but it is rather in beasts than in men; these veines descending by the sides of the *sternon* yeild nourishment to the 2 inner muscles of the chest, to the 7 intercostall muscles of the true ribs, to the *sternon* it selfe and to its ligaments and gristles, as also to the *Mediastinum* and the upper part of the right muscles, and the adjacent parts. Seaventhly it produces the *Cervicalis* which on both sides through the holes of the productions of the *Vertebra's* of the necke, ascends to the head, sending many small branches into the spinall marrow through the holes by which the nerves passe, and also into the membranes, ligaments, gristles, bones, and neighbouring muscles. Eightly the *Musculosa* or musculous, which also arising out of the *Subclavia* is divided into two other branches; the one whereof goeth upon the brest to the paps, nourishing the foremost muscles; wherefore in a bastard pleurisie Cupping glasses may be fitly applied in this place.

The other branch descends to the upper muscles of the chest, but specially to that which is called *Latisimus*. The tenth is the *Axillaris*. The eleventh the *Humeralis*, of which we will treat in their place. The twelfth and last is the *Jugularis* properly so called, which is twofold, the internall and externall. The internall being the lesser doth presently on both sides from this very beginning ascend by the sides of the *Aspera Arteria* or weazon even to the mouth and skull, yeilding nourishment to the parts by which it passes, as to the next membranes and nerves. But when it comes to the *basis* of the *Cranium* it is divided into two branches, the greater whereof going back along the *basis* of the *Cranium* to the hind part thereof, sending a branch to the long muscle scituate upon the *œsophagus*, it enters the *Cranium* with the small *Carotides* through the hole of the nerves of the sixth conjugation, where they become one common vessell. The lesser sending a slippe to the organe of hearing by the hole called *Cacum* (or the blind) also enters the *Cranium* and is spent in the thicker *meninx* nere to the hole of the third and fourth conjugation of nerves. The externall Jugular veine being greater and fairer, most commonly simple, yet sometimes double, either presently at his beginning, or a little after, ascends superficially on both sides of the neck, between the broad muscle or fleshy pannicle, being there easie to be discerned, and other muscles scituate at the sides of the neck, into which as also into the skin it sends certaine branches for nourishment.

Axillaris.
Humeralis.
Jugularis interna, et externa.
Into what parts the *Jugularis interna* goes.

Into what parts the *Jugularis externa* goes.

The Figure of the hollow veine whole and freed from the rest of the body.



A, The trunk of the hollow veine, the lower

AA, At this place of the Liver, is seated the left part of the veine, and distributeth branches to the left side.

B, Sheweth how the trunk of the hollow veine in the chest (to give way to the heart) is curved or bowed to the right hand.

Betwix A. and B. that part of the hollow veine which is betwixt the gibbous side of the Liver and the Midriffe.

C. the left midriffe veine called *phrenica sinistra*, from which furcles doe run in a man unto the purse of the heart, for the midriffe and it doe grow together.

D, The orifice of the hollow veine which groweth unto the heart.

E, the crown-veine called *coronaria*, which like a crowne compasseth the basis of the heart, and sprinkleth his furcles on the outside thereof as far as to the cone or point.

FF, The trunk of the veine, *Azygos* or *non parill*, descending along the right side of the rack-bones

the veine, *Azygos* or *non parill*, descending along the right side of the rack-bones

bones unto the loynes. *GG*, the lower intercostall veines, to the branches of the veine *Azygos*, which go unto the distances betwixt the ribs, & afford surcles unto the muscles which lye upon the ribs & the racke-bones, & the membranes of the chest. *H*, the division of the hollow vein into two subclavian trunks neare the Iugulum under the brest-bone. *II*, the subclavian branch tending on either side unto the arme; called by some *Axillaris*. *K*, the upper intercostall veine which commonly sendeth three slips unto the distances of the upper ribs, unto which the first intercostall veine sent no branches. *LL*, the descending mammary veine: this descendeth under the brest-bone unto the right muscles of the *Abdomen*, & affoordeth surcles to the distances of the gristles of the true ribs, to the Mediastinum, the muscles that lye upon the breast and the skin of the *Abdomen*. *M*, the coniunction of the mammary with the Epigastricke vein ascending about the navill under the right muscles. *N*, the veine of the necke called *Cervicalis*, ascending toward the Scull, which alloweth surcles to those muscles that lye upon the neck. *O*, the veine called *Muscula*, which is propagated with many surcles into the muscles that occupy the lower parts of the necke and the upper parts of the chest. *P*, *Thoracica superior*, the upper chest veine which goeth to the muscles lying upon the chest, to the skinn of that place and to the dugges. *Q*, the double *Scapularis* distributed into the hollow part of the shoulderblade and the neighbour muscles: so also betwixt *P* and *R*, sometimes small veines doe reach unto the glandules that are in the arme-holes. *R*, *Thoracica inferior* running downward along the sides of the chest, and especially distributed into the muscle of the arme called *Latissimus*. *S*, the inner Iugular veine which entreth into the Scull after it hath bestowed some surcles upon the rough artery. *T*, the externall Iugular veine. *V*, the division of this veine under the root of the eare. *X*, a branch of the externall Iugular which goeth into the inside of the mouth, and is diversly divided into the parts therein contained. *Y*, the exterior branch distributed near the *Fauces* into the muscles of the chops and the whole skinn of the head. *Z*, a portion of the branch, *y*, reaching unto the face. *a, a*, the veine of the fore-head. *a, a* portion of it creeping through the temples *a, ** a propagation that goeth unto the skin of the Nowle or *Occiput*. *a, a*, the veine called *Cephalica*, or the externall veine of the arme which others call *Humeraria*. *b*, *Muscula superior*, a propagation of the *Cephalica* veine which goeth unto the backward muscles of the necke. Betwixt *b*. and *d*. on the backside issueth a branch from the *Cephalica* which passeth unto the outside of the blade, and a portion thereof runneth betwixt the flesh and the skin. *d, d*, a veine from the *Cephalica* which attaineth unto the top of the shoulder, and is consumed into the muscle that elevateth or lifteth up the arme and into his skin. *e, e*, a small veine from the *Cephalica* dispersed through the skin and the muscles of the arme. *f*, the division of the *Cephalica* into three parts. *g*, the first branch runneth deep unto the muscles which arise out of the externall Protuberation of the arme. *h*, the second branch which goeth to make the median veine. *i, i*, the third branch running obliquely above the wand and the outside of the arme. *k*, from this branch certaine circles are divided into the skin, the chiefe whereof is marked with *k*. *l*, the third branch at the wrist which is joyned at *l*, with the branch of the *Basilica* marked with *x*. *m*, the *Basilica* which on the right hand is called *Hepatica*, on the left hand *Lienaris*. *n, o*, a branch of the *Basilica* going to the heads of the muscles of the cubit at *n*, and to the muscles themselves at *o*. *p*, a notable branch of the *Basilica* running obliquely, and bestowing surcles upon the muscles that issue from the externall protuberation. This branch descendeth together with the fourth nerve. *q*, division of the *Basilica* into two branches, and that is noted with *q*, is ever accompanied with an artery. *s*, a branch of this veine bestowed upon the skin of the arme. *t*, a branch of the *Basilica* which together with the branch of the *Cephalica* marked with *b*, makes the *mediana* or middle veine marked with *a*. *u*, a branch of the *Basilica* going to the inner head of the arme. *xx*, a branch issuing out of the former that creepeth along unto the wrist and toward the little finger conjoining it selfe with a branch of the *Cephalica*. *y*, A veine running out unto the skinn at the outside of the cubit. Upper *z*. A propagation issuing out of a branch of the *Basilica* marked with *t*. Lower *z*. A branch of the *Basilica* *x*, going to the in-side of the Arme. *a*, The *Median* or common veine, *b*, The partition of the Median veine above the wrist: This division should have beene made above *y*. *y*. The Externall branch

of the partition which goeth to the outside of the head. *a*, From which issueth a small branch to the inside. *b*, The internall branch under *a*, which toward the middle and the ring finger is especially disposed. *c*, The veine of the thumbe disperfed into the mounten or hillock, which is conjoynd with the branch noted with *d*. *e*, the trunk of the hollow veine from which issue branches unto the parts seated under the liver. *f*, The fatty veine called *Adiposa sinistra*, which goeth unto the fat of the kidnies. *g*, The two Emulgents which leade wheyey bloud unto the kidnies. *h*, the two spermatick veines leading the matter of the feede unto the testicles. *i*, the beginning of the bodden vessell called *vas varicosum*. *k*, the veines of the loynes called *Lumbares* which are sent in the knots or knees to the rackebones, to the marrow of the backe, to the muscles that lies upon the loines, and to the *Peritonaeum*. *l*, the bifurcation of the hollow veine into the Iliacke branches, which bifurcation is not unlike *a*. *m*, *Muscula superior*, a transverse branch going to the muscles of the *Abdomen*, and to the *Peritonaeum*. *n*, the division of the left Iliacke veine, into an inner branch at *p*, and an utter at *q*. *r*, *Muscula media* the utter propagation of the branch *p*, distributed through the muscles of the *coxa* and the skin of the buttocks. *s*, An inner propagation of the same branch *p* which goeth unto the holes of the holy bone. *t*, the veine called *Sacra*, which goeth to the upper holes of the holy bone. *u*, the veine *Hypogastrica* distributed to the bladder, to the muscles of the fundament, and the neck of the womb. *v*, A veine arising from the utter branch marked with *o* which is ioyned with some branches of the internall veine, neare the holes or perforations of the share bone. *w*, A veine which when it hath passed the share bone distributeth one branch into the cup of the *coxendix* and to the muscles of that place. *x*, Another small branch which runneth under the skinn at the inside of the thigh. *y*, The congresse or meeting of the foresaid veine, with a branch marked with char. *z*, and distributed into the legge. *1*, The *Epigastricke* veine, a propagation of the utter branch *o* perforating the *Peritonaeum*, whereto as also to the muscles of the *Abdomen*, and the skinn it offereth branches, the chiefe branch of this veine is joyned with the descending mammary above the navell at *M*. *Δ*, *Pudenda* an inner propagation of the branch *o*, running overthwart unto the privities. *Θ*, *Saphana* or the ancle veine or the inner branch of the crurall trunk, which creepeth through the inside of the legge under the skinn unto the tops of the toes. *Λ*, the first interior propagation of the *Saphana* offered to the groin. *Ξ*, The utter propagation thereof divided to the foreside or outside of the thigh. *Π*, The second propagation of the *Saphana* going to the first muscle of the legge. *Σ*, The third propagation of the *Saphana* going to the skinn of the whirlebone, and unto the hamme. *Ϛ*, The fourth propagation of the *Saphana* dispersing his muscles forward and backward. *ϛ*, Branches from this unto the foreside of the inner ankle, to the upper part of the foote, and to all the toes. *Ω*, *Ischias minor* called also *muscula interior*, the utter branch of the crurall trunk divided into the muscles of the *coxendix*, and to the skinn of that place. *1, 2*, And this also may be called *muscula*. *1*, the exterior and lesser which passeth into some muscles of the legge: *2*, the interior greater and deeper unto the muscles of the thigh. *3, 4*, The veine called *Poplitea*, made of two crurall veines divided under the knee. *5*, From this a furcle is reached upward unto the skinn of the thigh. *6*, But the greater part runnes by the bent of the knee under the skinn as farre as the heele. *7*, Also to the skinn of the outward ankle. *8*, The veine called *Suralis* or calfe veine, because it runneth unto the muscles that make the calfe of the legge. *9*, The division of the Surall veine into an exterior trunk *9*, and an interior *14, 10, 11*, The division of the exterior trunk under the knee into an externall branch, which along the brace attaineth unto the muscles of the foot *11*, and in internall. *12, 13, 12, 13*, Which descending along the outside of the legge to the upper part of the foote is cloven into divers branches, and in the backe of the foot mixeth it selfe with *Poplitea*, or the hamme veine *20, 14*, The interior branch of the Surall veine which runneth into the backside of the leg. *15*, A branch hereof descending to the inside of the heele and the great toe, and is divided into divers furcles. *17*, *Ischias maior* issuing out of the internall trunk at *14*, and running through the muscles of the calfe. *18*, A propagation hereof derived unto the upper part of the foot, & affording two furcles to every toe. *19*, the remain-

of the inner trunk 14, behind the inner ankle, approacheth to the bottome of the foote and is consumed into all the toes. 20, the commixtion of the veine *Poplitea* with the surall or calfe-branch at 13.

Where the external Iugular veine may be safely opened in inflammations of the parts of the mouth.

But when it arives to the basis of the lower part of the head, it is divided into more branches, one wherof is carried to the muscles of the bone *Hyois*, the *Larinx*, the tongue and the lower part of the tongue (in which place it is commonly opened in squinancies, and other inflammations of the mouth) and to the coate of the nose. Another is carried to the *Dura mater*, passing on both sides through a hole situate under the bone *mastoides*, and besides, ascending to the bone of the backe part of the scull, it comes obliquely to the upper part of the suture *lambdoides*, where these branches meeting together, passe into the reduplication of the *Dura mater*, deviding the fore-part of the braine, that so joined and united, they may make the *torcular*; the third ascendent is distributed upon the backe part and *basis* of the lower jaw, to the lippes, the sides of the nose, and the muscles thereof: and in like manner to the greater corner of the eyes, to the forehead and other parts of the face, and at length by meeting together of many branches, it makes in the forehead the veine which is called *vena recta* or *vena frontis*, that is, the forehead veine. The fourth, ascending by the glands behind the eares, after it hath sent forth many branches to them, is divided into two others, one whereof passing before, and the other behind the eare, are at length spent in the skinne of the head. The fifth and last wandring over all the lower part of the head, going to the backe part thereof, makes the *vena pupis*, which extended the length of the head by the sagitall suture, at the length goeth so farre, that it meets with the *vena frontis*, which meeting is the cause, that a veine opened in the forehead, is good in griefes of the hinder parts of the head, and so on the contrary. But wee must observe that in the *Cranium* of some, the *vena pupis* by one or more manifest passages sends some portion thereof to the inner part of the head, so that the *vena pupis* being opened may make revulsion of the matter which causeth the internall paines of the head.

Vena recta.

Vena pupis.

CHAP. XIII.

The distribution of the nerves, or sinewes of the sixth conjugation.

Three paire of nerves of the sixth conjugation.



Because the Distribution of the arteries cannot be well shewed, unlesse wee violate those nerves which are carried over the Chest, therefore before we shew the distribution of the arteries, we will as briefly as we can, prosecute the distribution of these nerves.

Now the sixth conjugation brings forth three paire of nerves; for passing out of the skull, as it comes downe to the Chest, it by the way sends forth some branches to certaine muscles of the necke, and to the three ascendant muscles of the *Larinx* on each side of the *Sternon* and upon the clavicles. Then the remainder descending into the Chest, is divided on each side into these three paire. The first paire makes the *Ramus costalis*. The second, the *Ramus recurrens*. The third paire, the *Ramus stomachicus*. The *Ramus costalis*, or costall branch is so called, because descending by the roots of the ribs, even to the holy bone, and joyning themselves to these which proceede from each of the *Vertebra's* of the spine, they are carried to all the naturall parts.

Ramus costalis.

Recurrens.

The *Recurrens*, or recurrent is also called, because as it were starting up from the chest, it runs upwards againe, but these two Recurrent nerves doe not run backe from the same place; but the right from below the artery, called by some the axillarie, by others Subclavian, and the left from beneath the great artery, descending to the naturall parts. But each of them on each side ascending along by the weazon, even to the *Larinx*, and then they insinuate themselves by the wings of the *Cartilago scutiformis*, and *Thyroides* into the proper muscles, which open and shut the *Larinx*.

An anatomical Axillarie.

By how much the nerves are nearer the originall, to wit, the braine, or spinall marrow,

marrow, they are by so much the softer. On the contrary, by how much they are further absent from their originall, they are so much the harder and stronger, which is the reason, that Nature would have these recurrent nerves to runne backe againe upwards, that so they might be the stronger to performe the motions of the muscles of the *Larinx*. But the *Stomachicus* or stomacke-branch is so called, because it descends to the stomacke or ventricle. For this branch descending on both sides by the sides of the gullet, sends many branches from it into the inner substance of the lungs, into the coate thereof, into the *Pericardium* and heart; and then comming into the upper orifice of the stomacke, it is spent in many branches, which folded after divers manners and wayes, chiefly makes that mouth or stomacke, which is the seate of the Animall appetite (as they terme it) and hunger, and the judger of things convenient or hurtfull for the stomacke. But from thence they are diversely disseminated over all the body of the ventricle.

Why nature would have the vocall nerves recurrent.
Ramus Stomachicus.

Moreover, the same branch sends forth some small branches to the liver and bladder of the gall, giving each part by the way, so much sense as should be sufficiently necessary for it. Here you must note, the stomacke branch descends on each side one, knit to the gullet, and by the way they divide themselves into two branches, each of which goes to the opposite side, that it may there joine it selfe to the nerve of that side. To which purpose the right is carried above the gullet, the left below it, so that these two stomaticke become foure, and againe these foure presently become two.

CHAP. XV.

The division of the Arteries.

THe Artery arising forth of the left ventricle of the heart, is presently (the two Coronall arteries being first spread over the substance of the heart) divided into two unequall branches. The greater whereof descends to the lower parts, being distributed, as we formerly mentioned in the third Booke, and 22. Chapter. The lesser ascending to the upper parts, is againe divided into two other unequall branches, the lesser of which ascending towards the left side, sends forth no artery from it, untill it arrive at the first rib of the Chest, where it produces the subclavian artery, which is distributed after the manner following.

The left branch of the ascendant artery is lesse then the right. The distribution of the left subclavian artery into the,

First, it produces the intercostall, and by it imparts life to the three intercostall muscles of the foure upper ribs, and to the neighbouring places.

1
Intercostalis,

Secondly, it brings forth the Mammillary branch, which is distributed as the Mammillary veine is.

2
Mammaria.

Thirdly, the *Cervicalis*, which ascends along the necke by the transverse productions to the *Dura mater*, being distributed as the *vena cervicalis* is.

3.
Cervicalis.

Fourthly, passing out of the Chest, from the backe part of the Chest, it sends forth the *musculosa*, whereby it gives life to the hinde muscles of the necke, even to the backe part of the head.

4
Musculosa.

Fifthly, having wholly left the Chest, it sends forth the two *Humeraria*, or shoulder arteries, the one whereof goes to the muscles of the hollow part of the shoulder blade, the other to the joint of the arme and the muscles situate there, and the gibbous part of the shoulder blade.

5
Humeraria duplex.

Sixthly and lastly, it produces the *Thoracica*, which also is twofold, for the one goes to the fore muscles of the Chest, the other to the *Latsissimus*, as we said of the veine, the remnant of it makes the *Axillaris* of that side.

6
Thoracica duplex.

The other greater branch likewise ascending by the right side, even to the first ribbe of the Chest, makes also the subclavian of that side, which besides those divisions it makes on this side, like those of the left side, hath also another which makes the right and left *Carotides* or sleepey arteries, which ascending undivided with a nerve of the sixth conjugation and the internal jugular veine, by the sides of the *Aspera Arteria* or windpipe, when they come to the *Pharinx*, they are divided on each side into two branches, the one internall, the other externall. The internall and greater

The distribution of the right subclavian Artery. The *Carotides*, or sleepey arteries. Their division. The distribution of the internall branch of the sleepey arteries,

ter is sent to the *Pharinx*, *Larinx* and tongue; then entering into the head by the long hole, and the backe part of the upper jaw, it sends many branches to the nose, eyes, the inside of the temporall muscles and to the *Crasa meninx*, or *Dura mater*: the remainder of this branch going by the side holes of the same, that it might there make the *Plexus admirabilis* as we see. And then it is spent upon the basis of the braine abundantly diffused over the *tenuis meninx* or *Pia mater*, and the membrane or *Plexus Choroides*. The externall or lesser branch of the sleepey arteries goes to the cheekes, the temples, and behind the eares; lastly, it sends a branch into the long muscle of the necke, with which the internall Iugular veine insinuates it selfe into the *Dura mater*, cutting by the hole of the nerves of the sixth conjugation.

To what parts
the externall
branch of the
sleepey artery
arrives,

The Figure of the Arteries.



A. The orifice of the great Arterie, or the beginning thereof, where it issueth out of the heart.

B. *Coronaria*, so called, because like a crowne it compasseth the basis of the heart.

C. The division of the great arterie into two trunks V i.

D. the left subclavian climbing obliquely upward unto the ribs.

E. the upper intercostall artery, or a branch which bestoweth foure propagations unto the distances of the lower rib.

F. the necke arterie which through the transverse processes of the rackebones of the necke, attaineth to the skull; bestowing furcles unto the marrow and his neighbour muscles.

G. the left Mammary artery running under the breast-bone, and to the navell.

It distributeth furcles to the *Mediastinum*, the muscles of the brest, and of the *Abdomen*.

H. *Muscula*, or a branch attaining to the backward muscles of the necke.

I. the *Scapular* arteries which goe unto the hollownesse of the blade, and of the muscles that lie thereon.

K. *Humeraria* which climbeth over the top of the shoulder. L. *Thoracica superior*, sprinkled unto the forward muscles of the Chest. M. *Thoracica inferior*, which passing along the sides of the Chest, attaineth to the broad muscles of the arme. N. the axillarie artery running out into the arme and affording branches unto the muscles thereof. O. A branch reaching to the outside of the cubit lying deepe. PP. Branches to the ioynt of the cubit with the arme. Q. the upper branch of the artery running along the *Radius* and offering furcles to the thumbe, the fore-finger and the middle finger. R. A furcle creeping unto the outside of the hand and led betwixt the first bone of the thumbe and that of the after-wrist, supporteth the fore-finger where wee use

use to feele the pulse. S. the lower branch of the artery running along the *Vlna* and communicating furcles to the little finger, the ring finger, and the middle finger. • A little branch unto the muscles about the little finger. T. the distribution of the upper and lower branches into the hand and the fingers V. the trunk of the great artery ascending to the *Iugulum*, and the division thereof in that place into X, Y, Z. X, the left *Carotis* or sleepey artery. Y, *Subclavian dextra* is divided into branches, as the right is divided. Z. *Carotis dextra*, called also *Apoplectica* and *Lithargica*. a, The division of the left *Carotis* in the chops. b, the exterior branch of that division going into the face, the temples, and behind the eares. c, the inner branch going to the throttle, the choppes and the tongue. d, the division hereof at the basis of the scull, into two branches which enter the *sinus* of the *Dura mater*. e, A propagation of the branch b, unto the muscles of the face. f, the distribution of the branch b, under the roote of the eare. g, the fore-branch hereof creeping up the temples. h, the backe branch running on the backside of the eare under the skinne. i, the trunk of the great artery, descending unto the spondels of the backe. kkk, the lower *Intercostall* arteries which goe unto the distances of the eight lower ribbes, from which are offered furcles to the marrow, and to the muscles that grow to the backe and to the Chest. l, the artery of the midriffe called *Phronica* or *Diaphragmatica*. ζ, *Mesenterica Superior*, but you must note that above ζ, the trunk of the *Cœliacall* artery is taken away, lest the multitude of letters in so small a Table should breed obscurities. η, θ, the right and left emulgents running from the *Aorta* or great artery unto the kidneies. ι, κ, κ, the spermaticall arteries on either side going to the testicles. λ, the lower *Mesentericall* artery on the left below μ, running especially into the Collicke gut on that side. μ, μ, the arteries called *Lumbares* which runne overthwart and like knees, affording furcles to the muscles that grow to the loynes, and to the *Peritoneum*. ν, the lower; *Muscula superior* running into the sides of the *Abdomen* and the muscles. νν, the byfurcation of the great artery into two *Iliacke* trunks, and at the sides, but somewhat inward are branches which make those that are called *Sacra*. T, the division of the left *Iliacke* trunk into an inner branch at ξ and an utter at φ. ξ, the inner *Iliacke* branch. ο, *Muscula inferior*, the utter propagation of the inner branch going unto the muscles which cover the branch bone and the *Coxendix*. ω, *Hypogastrica*, the inner propagation of the inner branch going to the bladder, the yard and the necke of the womb. φ, the umbilicall artery. ς, the remainder of the branch ξ, assuming an addition from the utter branch neere φ, and so falling through the hole of the share bone into the legge. τ, *Epigastrica*, it ascendeth upward unto the right muscle of the *Abdomen*, and about the navell is ioyned with the mammary artery. υ, *Pudenda*, it creepeth overthwart the share bone. φ, the *Crural* trunk without the *Peritoneum*. χ, *Muscula cruralis exterior*, going into the fore muscles of the thigh. ψ, *Muscula cruralis interior*, going unto the muscles of the inside of the thigh. ω, The conjunction of this arterie with the branches. T, *Poplitea*, going to the muscles on the backside of the thigh. ΔΔ, which communicateth small branches to the ioynt of the knee, and the muscles that make the calfe of the legge. φ, the division of the *Crural* artery under the hamme into three branches. λ, *Tibiaa exterior*, it accompanieth the brace-bone, and is consumed into the muscles. ζ, the chiefe part of the *crural* artery. ζ, the upper & backer *Tibiaa*. πφ, the lower and backer *Tibiaa* running unto the upper side of the foote at φ. φ, A propagation of the *crural* artery going to the inner and upper side of the foote, and sprinkling a branch unto the ankle. ς, A propagation unto the lower part of the foote which affordeth furcles to each toe.

But we must note that there be more veines in a mans body, than arteries, and besides that the veines are farre thicker. For there is no need for preserving the native heat in the parts themselves, either of so many, or so large instruments of that kinde. Therefore you may often finde veines without arteries, but never arteries without veines.

But we understand that an artery is a companiou to a vein, not only when it touches it, or adheres to it by common membranes, as usually it happens; but also when it is appointed together with the veine for the use of the same part.

CHAP. XVI.

Of the Thymus.

What the
Thymus is.

The use.

The magni-
tude.

The *Thymus* is a glandule of a soft, rare, and spongy substance, of large bignesse, situate in the furthest and highest part of the Chest, amongst the divisions of the subclavian or Iugular veines and arteries, as yet contained in the Chest, for this use; that it might serve these vessels for a defence against the bony hardnesse of the Chest, and besides, that as it were by this prop or stay, the distributions of these vessels might become the stronger; for so we see that nature hath provided for others, especially such as are the more noble and worthy. This glandule appears very large in beasts and young men, but in such as have attained to full growth it is much lesse, and scarce to be seene.

CHAP. XVII.

Of the Aspera Arteria, the rough Arterie or Weazon.

The substance



The *Aspera Arteria* or Weazon seeing it is the instrument of voice and respiration, is of a gristly, ligamentous, and wholly various substance. For if it had beene one rough, and continued body with the *Larinx* or throttle, it could be neither dilated, nor compressed; opened, nor shut, neither could it order the voice according to our desire.

Composure.

It is composed of veines from the internall Iugular, of arteries arising from the *Carotides*, and of nerves proceeding from the Recurrent branch, of a double membrane, of which the externall comes from the *Peritoneum*; the internall, which is the stronger and woven with right fibers, from the inner coate of the mouth, the which is common with the inner coate of the *oesophagus* or gullet. And also it consists of round gristles, yet not drawne into a perfect circle, composed in manner of a channell, and mutually joined together in order, by the ligaments that proceede from their sides and ends.

Why the back
part of the
weazon is
ligamentous.

These same ligaments perfect the remnant of the circle of this *Aspera Arteria*, on that part next the gullet; which is thought to be done to this end; that that softnesse of a ligament, might then give place, when wee swallow harder and greater gobbets of meate. Of the two sorts of ligaments which are annexed to the gristles of the weazon, some tie and fasten together the rings or circles, which give meanes both to it, and these circles to be drawne out in length; other some bring these gristles into a perfect circle, which also yeeld them meanes of dilatation. These ligaments cover the inner superficies, but the gristles are placed without, to resist the incursion of externall injuries. But wee must note, that by this communion of the inner coates of the weazon and gullet, wee reape this benefit in the commodiousnesse of the action, that one of these parts being depressed, the other is lifted up, like a rope running in a wheele or pully. For thus whilest the gullet is deprest to swallow any thing, the weazon is lifted up; and on the contrary when the stomacke rises up in vomiting, the weazon is deprest. It is onely one, and that seated betweene the *Larinx* (from which it takes its beginning) and the lunges in which it ends; first dividing it selfe into two large branches, the right and the left, and besides each of these entring into the substance of the lunges, is againe divided into two others; to each of the Lobes one; and to conclude, these be subdivided into infinite others, through the substance of the Lobes.

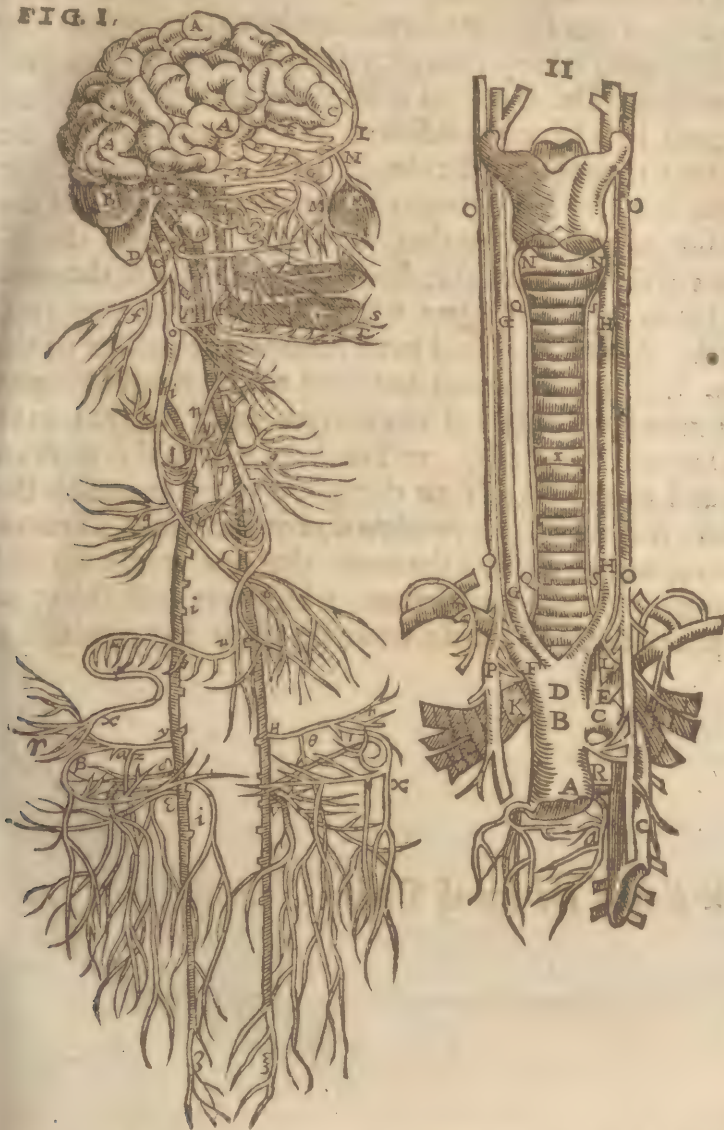
Why the fore-
part is gristle-
ly.The number
and site.
The division
of the weazon
through the
Lobes of the
Lungs.

All these branches are gristly even to the ends. They are situate betweene the ends of the *Arteria venosa*, and the *Vena arteriosa*, that the entrance of the aire into the heart by the *arteria venosa* might be speedier, as also the passage out of the vapour, by the *vena arteriosa*. Thus it hath connexion with these in the ends, or utmost parts thereof, but by the other parts compassing it, with the members from whence it takes

takes them. The temperament thereof is cold and drie. The action is to carry the aire to, and vapours from the lungs; that by dilating, but this by pressing the gristles together. The temper and action.

The Figure of the Aspera Arteria or Weazon.

FIG. I.



- A. The orifice of the great artery cut from the heart,
 aa. the coronall arteries of the heart.
 B.C.D. the division of the great artery into two trunks, the descending C. the ascending D.
 E. the left axillarie, or sub-clavian arterie.
 F. the right axillarie or sub-clavian artery.
 G. the right *Carotis* or slee-
 pie artery.
 H. the left *Carotis*.
 I. the trunk of the rough artery or weazon.
 K.L. The division of the rough artery into two branches, of which the right goes into the right, and the left into the left side of the lungs; which branches are again subdivided into many other.
 M. The head of the Rough Artery called the *Larinx* or *Throttle*.
 N.N. Certaine Glandules or Kernells at the root of it.
 OO. The right and left

Nerves of the sixth and seventh conjugation. P. A Revolution of small branches of the right nerve, to the right *Axillary* Artery. Q Q. The right *Recurrent* Nerve. R. A revolution of small branches of the left nerve unto the descending trunk of the great Artery. S S. The left *Recurrent* Nerve.

CHAP. XVIII.

Of the Gullet.

THe *Oesophagus*, or Gullet which is the passage of the meat and drinke, The substance is of a middle substance betweene the flesh and sinewes, because it consists of one nervous membrane and another fleshy. The nervous is placed the innermost, and is continued to the inner Coate of the mouth even to the Lipps (whereby it comes to passe,) that the Lipps tremble in diseases which are ready to be judged by a critically vomiting and to the inner part Attractive force thereof of the *Aspera Arteria*; it consists of right Fibers for the attraction of the meat, which we see is sometimes so quicke and forcible in hungry people, that they have scarce time to chew it, before they find it, to be pluckt downe, as it were with a hand. The fleshy Coate placed without is woven with transverse fibers, to hasten The composition the ture,

The magni-
tude.
The figure.
Site.

Temper and
action.

Why we can-
not sup and
blow at one
time.

the going of the meat into the stomacke, and for expulsion in vomiting and breaking of winde. These two coats are continued with the two coats of the stomacke, and have the like fire. Besides, the Gullet hath these parts composing it, as a veine from the Gate and Hollow ascendent veine, a nerve from the sixth conjugation, an Artery from that which creeps alongst the bottome of the stomacke with the *vena Gastrica*, or else from the Arteryes ascending the hollow part thereof; but also besides all these vessels it may have a third coat from the membrane investing the Ribs, or *Pleura*. The magnitude of the Gullet is large enough, yet some be bigger, some lesse according to the variety of bodyes. The figure of it is round, that so it might be more large to swallow meat, and lesse subject to offence. It is placed between the backe bone and the weazon from the roots of the tongue even to the stomacke. But as it discends alongst the backe bone, when it comes to the fourth *Vertebra* of the Chest, it turnes to the right side, to give way to the great Artery *Aorta* and the descendent Artery, then it turnes to the left side to the stomacke, or mouth of the *ventricle*. Nature hath fastened it to the *Diaphragma* with strong membranous tyes, lest that, if it had laine upon the Artery it should have hindred the passage of the vitall spirit to the lower parts. It is onely one and that tyed to the forementioned parts, both by its vessels and membranes. It is of temper rather cold than hot, as all those parts, which are more nervous than fleshy, are. The Action thereof is to draw and carry downe the meat, and to cast forth such things by vomit as trouble the stomacke. Here you must note, that whilest we swallow downe, the Gullet is drawne downewards, and the weazon upwards, which is the cause that wee cannot sup and blow, swallow and breathe together at the same instant, which wee must thinke to happen by Gods singular providence; to whose name be glory for everlasting, Amen.

The End of the fourth Booke.

THE



THE
FIFTH BOOKE
OF THE ANIMALL
parts contained in the Head.

CHAP. I.

A Generall description of the Head.



Aving hitherto declared two generall parts of mans body, that is, the Naturall and vitall, it is now fit to betake our selves to the last, that is, the Animall, beginning with the head.

Whrefore we will first define the head, then divide it into its parts; thirdly describe each of these parts; fourthly demonstrate them after the order they offer themselves to our sight in dissection.

The head therefore is the seat of the senses, the Pallace and habitation of reason and wisedome, from whence as from a fountaine infinite actions and commodities arise. It is seated above the rest of the body, that the Animall spirit from thence, as from a tower, may governe and moderate the whole body, and performe all actions according to the præscript of nature. By the head we understand all that which is contained from the Crowne of the head to the first *vertebra* of the neck.

What the head is.

Why seated in the highest place.

The best figure of the head is round, lightly flatted on each side, extuberating something to the fore and hinde part thereof. For from hence is taken an argument of the goodnesse of the senses; on the contrary, those which are exactly round, or acuminate, and sharp towards the top, are not thought good. The head is devided into the face, forehead, temples, the forepart, the crowne and hinde part.

The figure.

The division thereof.

By the face we understand, whatsoever is contained between the Eye-browes and the lower part of the chin. By the forehead, all the space from the eye-browes even to the Coronall suture. By the temples, whatsoever is hollowed from the lesser Corner of the eye, even to the eares. By the forepart of the head, whatsoever runnes in length from the top of the forehead, or the Coronall suture, even to the suture *lambdoides*, and on each side to the *Ossa petrosa*, the stony bones, or scaly sutures. By the Crowne we signifie a certaine point exquisitely in the midst of the Sagittall suture, which is sufficiently knowne. By the *Occipus* or hindepart of the head, that which is terminated by the suture *lambdoides*, and the first *vertebra* of the neck.

Of all these parts there be some simple, some compound, besides some are containing

The containing
parts of the
head.

aining, some contained. Of the containing some are common to all the parts of the head, as the skinne, the fleshy pannicle and *pericranium*; others are proper to certaine parts, as the fleshy panicle to the neck, face, forehead, and skin covering the *Cranium*, the common coat of the muscles to the fat and face; The skull and both the *Meninges* to the braine.

The parts
contained.

The parts contained are the substance of the braine, the foure ventricles, and the bodyes contained in them, the nerves, the mamillary processes, the *Plexus Choroides* or *Retē Admirabile*, the *Glandula Basilaris*, and others of which we will speak hereafter.

Wee must now speak of the containing parts beginning with the skinne; for the order of teaching requires that we take our *Exordium* from the more simple, but first we will say some thing of the haire.

What the
haire is.

The haire is nothing els than an excrement generated and formed of the more grosse and terrene portion of the superfluities of the third concoction, which could not be wasted by insensible transpiration. The benefite of it is, that consuming the grosse and fuliginous or sooty excrements of the braine it becomes a cover and ornament for the head.

The use there-
of.

This haire of the head and eye-browes have their originall from the first conformation of the infant in the wombe, the rest of the haire of the body arise and grow forth as the body growes and becomes more dry, of which sort are the haire which cover the Chin, armeholes, groines and other parts of our bodyes.

CHAP. II.

Of the musculous skinne of the Head, (commonly called the hairy scalpe) and of the Pericranium.

What the
hairy scalp is.
Its connexion.

* Our Author with *Fallopins* and *Laurentius* confounds the *pericranium* and *periostium*; but *Pesalius Bauhinn* and *Bartholinus* distinguish them making the *pericranium* thin and soft, and the *periostium* most thin and nervous, and of most exquisite sense.

Why the
wounds there-
of must not be
neglected.

The *Pericranium* and *periostium* of the same nature. Whence all the membranes proceed.

Why when
any mem-
branous part
is hurt in any
part of the
body, the head
is affected by
consent.

The use of the
Pericranium.



He skinne which covers the Scull, and is covered with the haire, is farre more fleshy, thick, hard and dry than any other part of the body, especially which wants haire. The skinne hath almost the like condition of quality as those parts have, which it doth simply cover, but is as it were lost in them, or growne into one with them, as in the lips and forehead with the fleshy pannicle, wherefore it is there called musculous; in other places it adheres to the gristles, as on the sides of the nosethrilles and corners of the Eyes, whereupon it is there called gristlely.

It hath connexion with the *Pericranium* because joined to it, it receives nerves from the first and second *vertebra* of the necke, and from the third conjugation of the braine which are disseminated through all its substance, whereby it comes to passe, that the wounds, contusions, and impostumes that happen in or upon this skinne, are not to be neglected.

The * *Pericranium* (but I suppose it should be the *Periostium*) is a most thin membrane, which next and immediately covers all the bones of the body, and this on the head is called by a peculiar name the *Pericranium* by reason of the excellency of the *Cranium* or skull, in other bones it is tearmed the *Periostium*. And as the *Pericranium* takes its originall from the *Crassa meninx* propagating it selfe by certaine strings or threds sent forth by the futures and holes of the skull, so all other membranes of the body have their originall either from this *Pericranium*, or the *Crassa meninx*, lending forth their productions, as well by the holes or passages of the head, as by these of the spinall marrow or back bone it selfe, even to the Holy bone.

Of which this is an argument, for in what part soever of the body a membrane is hurt, presently the hurt or sense thereof comes to the *Crassa meninx*. For so those who have but their litle Toe hurt when they sneeze, or cough, perceive an increase of their paine, by the passage thereof to the braine.

The vse of this *Pericranium* is to cover the skull, and to give notice of things hurtfull, by the power of the quick sense which it is endued withall, and the *Periostium* doth the like in other bones. Besides it sustaines and fastens by the futures the *Crassa meninx* to the skull, least it should fall by reason of its weight upon the *Pia mater*, and so

to hurt it, and hinder the pullation of the braine and arteryes that are plenteously spread through both the *Meninges*. Wherefore the *Pericranium* hath most strait connexion with the *Crasa meninx*, because it takes the originall from thence.

We must thinke the same of the other membranes of the body, which thing is very notable in the solution of the continuity of the membranes.

CHAP. III.

Of the Sutures.



The Sutures do sew or fasten together the bones of the skull; these be 5 in number. Three are true and legitimate, two false and spurious. The Coronal, the first of the true sutures, is seated in the forepart of the head, descending downwards overtwhart the forepart of the head to the midst of the temples; it is so called, because *Corolla*, that is, wreaths, crownes or garlands, are set upon that place.

Their use and number.

The second is called the *Sagittalis*, or right suture, as that which running through the crowne devides the head into two equall parts, as with a straigh line, running the length of it from the Coronall to the *Lambdoides* or hinde suture.

But this third suture *Lambdoides*, is so called because it represents this Capitall greek letter Lambda, Λ . You must understand this description of the sutures, nor as alwaies but as for the greater part to be thus. For there be some skulls that want the foremost suture, other some the hind, & somtimes such as have none of the true sutures, but only the false & spurious. But also you shal somtimes find the Sagittal to run to the nose.

Some skulls want Sutures.

And oft times there be three or foure sutures in the backe part of the head, so that indeed the number of the sutures is not certaine. Which also we find observed by *Cornelius Celsus*, where he writes, that *Hippocrates* was deceived by the sutures by chance, for that he conjectured that the bones of the backe part of the head, were broken, becaule his Probe thrust to the roughnes of the second suture *Lambdoides*, staied as at a Cleft made in the bone by a stroake.

Cels. lib. 8. Cap. 4.

The other two are called the false, stony and scaly sutures, by reason they are made by a scaly conjunction of the bones; but not by a toothed saw or combe-like connexion. But if any aske, why the head consists not of one bone, that so it might be the stronger: I answer it is, that so it might be the safer both from internall and externall injuries. For the skull being as it were the tunnel of the chymney of this humane fabrick, to which all the smoky vapours of the whole body ascend, if it had beene composed of one bone, these vapours should have had no passage fourth.

Why the skull consists of divers bones.

Wherefore the grosser vapours passe away by the sutures, but the more subtile by the pores of the skull; some have their sutures very open, but others on the contrary very close.

Therefore nature hath otherwise compendiously provided for such as want sutures; For it hath made one or two holes, some two fingers bredth from the *Lambdoides*, through which the *Vena papis* enters into the skull, and they are of that largenes that you may put a points ragge into them, that so the vapours may have free passage forth, otherwise there would be danger of death; thus nature hath beene careful to provide for man against internall injuries; and in like manner against externall, for it hath made the head to consist of diverse bones, that when one bone is broken the other may be safe, the violence of the stroak being stayed in the division of the bones.

In what bodies and by what meanes the *vena papis* sometimes enters into the pores within the skull.

Whereby you may know, that if the skull chance to be broken in the opposite side to that which received the blow, that it happens either by reason of the defect of Sutures, or else because they are unperfect, and too firmly closed; otherwise it is impossible such fractures should happen by reason of the separation of the bones, which breakes the violence of the blow that it can goe no further.

In what men one part of the head being striken, the opposite is broken.

And certainly as it is rare to find a skull without Sutures, so it is rare to find such kinde of fractures. Therefore Chirurgions must diligently observe the Sutures and site of them, least they bee deceived and take them for fractures, or unawares apply a

Why we must
not apply a
Trepan to the
Sutures.

Trepan to them, whence by breaking the veines, arteryes and nervous fibers by which the internall parts communicate with the externall, there may ensue increase of paine, a violent defluxion of blood upon the *Crassa meninx*, and the falling thereof upon the braine, (the fibers being broken by which it stuck to the *Pericranium*) and so consequently a deadly interception of the pulsation of the Braine.

CHAP. IIII.

Of the Cranium, or Skull.

What the *Cranium* or skull is.

Why the
nowle bone
is harder than
the rest.

* My Author
means by the
Os Basilare in
this place the
wedge bone:
but some
Anatomists
make it a *Syn-
noma* of this
Os occipitis.
The fore-head
bone, next to
the nowle
bone is harder
than the rest.
A Cavity to
be observed in
the forehead
bone.



The *Cranium*, or Skull covering the braine like an Helmet, is composed and consists of seaven bones, of which some are more dense, thick and hard than other some. The First is the *Os occipitis*, or Nowle bone seated in the back part of the head, more hard and thicke than the rest, because we want

hands and eyes behind, whereby we may keep or save our selves from falling. This bone is circumscribed, or bounded by the future *Lambdoides*, and the * *Os basilare*. The eminencies and as it were heads of this bone are received into the first *vertebra*; for upon this the head is turned forwards and backwards, by the force of foureteene muscles and strong ligaments, which firmly tye these heads of the Nowle bone in the cavities of this first *vertebra*.

The Second bone of the skull is in the forepart, and is called the *Os coronale* or *Os frontis* the forehead bone, it hath the second place in strength and thicknesse. It is bounded by the Coronal suture, and the ends of the wedgebone in this forehead bone there is often found a great cavity under the upper part of the eye-browes, filled with a glutinous, grosse, viscid and white matter or substance, which is thought to helpe to elaborate the aire for the sense of smelling.

Chirurgions must take speciall notice of this cavity, because when the head chances to be broken in that place, it may happen, that the fracture exceeds not the first table; wherefore they being ignorant of this cavity, and moved with a false perswasion that they see the braine, they may thinke the bone wholly broken, and to presse the *Meninges*, whereupon they will dilate the wound, apply a Trepan and other instruments to lift up the second table of the bone, without any need at all, and with the manifest danger of the life of the patient.

Ossa parietalia
and *bregmatica*.

The third and fourth bones of the Skull are the *Ossa parietalia*, or *Bregmatica*, having the third place of density and thicknes; although this density and thicknes be different in diverse places of them. For on the upper part of the head, or crowne, (where that substance turnes not to a bone in children untill they have all their teeth, so that it feelles soft in touching, and through it you may feele the beating of the braine) these bones are very tender, so that oft times, they are no thicker than ones naile, that so the moist and vapourous excrements of the braine, shut up where the greater portion of the braine resides, may have a freer passage by the Braines *Diastole* and *Systole*. These two square bones are bounded above with the Sagittall suture, below with the scaly, on the forepart with the coronall, and on the hinde part with the *Lambdoides*.

Ossa petrosa, or
the scaly bones

The fifth and sixth bone of the skull are the two *Ossa petrosa* stony or scaly bones which are next to the former in strength. They are bounded with the false or bastard Suture, and with part of the *Lambdoides*, and wedgebone.

Os sphenoides,
or the wedge
bone.

The seaventh is the *Os sphenoides*, *basilare* or *Cuneiforme* that is, the wedgebone. It is called *Basilare*, because it is as it were the Basis of the head. To this the rest of the bones of the head are fitly fastened in their places. This bone is bounded on each side with the bones of the forehead, the stony bones, and bones of the Nowle and pallate. The figure represents a Batte, and its processes her wings.

Os Ethmoides
or *cribrosum*.

There is besides these another bone at the Basis of the forehead bone, into which the mamillary processes ead, the Greekes call it *ἰσχυρὸν*, the Latines *Cribrosum* and *Spongiosum*, the Spongy bone, because it hath many holes in it not perforated in a direct passage, as in a sieve, but winding and anfractuons, that the aire should not by the force of attraction presently leap or ascend into the braine, and affect it with its qualities,

qualities, before it be elaborated by its lingring in the way. There are besides also fixe other little bones lying hid in the stony bones, at the hole, or Auditory passage; on each side three, that is to say, the *Ineus* or Anvill, the *Malleolus* or Hammer, and the *Stapes* or stirrop, because in their figure they represent these three things; the use of these we will declare hereafter.

The three bones of the Auditory passage.

But also in some skulls there are found some divisions of bones, as it were collected fragments to the bignesse almost of ones thumbe, furnished and distinguished by their proper commissures, or sutures, which thing is very fit to be known to a Chyrurgion in the use of a Trepan.

Verily he may give a conjecture hereof, whilest he separates the *Pericranium* from the skull, for the *pericranium* is with greater difficulty pluckt away from the sutures, because the *Crasa meninx* hath straiter connexion therewith by his nervous fibers sent forth in such places. The Skulls in women are softer and thinner than in men, and in children more than in women, and in young men more then in men of a middle age. Also the *Æthiopians* or Blackamoors, as also all the people inhabiting to the South, have their sculles more hard and compos'd with fewer sutures.

By what meanes a Chirurgion may conjecture, that there are extraordinary sutures in certaine places of the skull. The skulls of such as inhabit the Southern countries are more hard and dense. We must observe the extraneous be- sides nature which are in some skulls.

Therefore as it is written by *Hippocrates*, such as have their Skulls the softer, the Symptomes in fractures are more dangerous and to be feared in them. But the skull by how much the softer it is, by so much it more easily and readily yeilds to the perforating Trepan. Moreover in some skulls, there bee bunches standing out besides nature, made either round, or cornered, which the Chirurgion must observe for two causes; the first is for the better consideration of a blow or fracture. For in these bunches, or knots, the solution of the continuity cannot be, if it seeme to be stretched in length, but that the wound must penetrate to the inner parts. For in a round body there can be no long wound; but it must be deepe, by the weapon forced the deeper; because as a round body touches a plaine but onely *in puncto* in a prick or point, so what-so-ever falls only lightly or superficially upon it, onely touches a point thereof. But on the contrary a long wound must be upon a plaine surface, which may be but only superficiall.

Another cause is, because such bunches change the figure and site of the Sutures. And the Chirurgion must note that the skulls hath two tables, in the midst whereof the *Diploe* is; which is a spongy substance into which many veines and arteryes & a certaine fleshynefle are inserted, that the skull should not be so heavy, and that it might have within it selfe provision for the life thereof; and lastly that there might be freer passage out for the fuliginous vapours of the braine.

The site and substance of the *Diploe*.

The upper table is thicker, denser, stronger and smoother than the lower. For this as it is the slenderer, so it is the more unequall, that it may give place to the internall veines and arteryes (which make a manifest impression into the second table on the inside thereof) from which branches enter into the skull by the holes which containe the eyes. Which thing fastens the *Crasa meninx* to the skull, and is therefore very worthy to be observed.

For in great contusions when no fracture or fissure appeares in the skull by reason of the great concussion or shaking of the braine, these vessels are often broken, whence happens a flux of blood between the skull and membranes, and lastly death. But it is fit the Chirurgion take good heed to the tender and soft substance of the *Diploe*, that when he comes to it, having passed the first table, he may carefully use his Trepan, least by leaning too hard, it run in too violently, and hurt the membranes lying underneath it, whence convulsion and death would follow. To which danger I have found a remedy, by the happy invention of a Trepan, as I will hereafter more at large declare in handling the wounds of the head.

There may be a deadly rupture of the vessels of the braine without any fracture of the skull. Caution to be had in the use of the Trepan.

CHAP. V.

Of the Meninges, that is, the two membranes called
Dura Mater and Pia Mater.

Why the bone
Ethmoides is
perforated.



The *Crassa meninx* is one of the first and principall membranes of the body; it goes forth by the sutures and the holes of the nerves that proceed out of the skull; and it passes forth by the bone *Ethmoides* perforated for that purpose, to carry smells to the Braine, and purge it of excrementitious humors. This same *Crassa meninx* invests the inner coate of the Nose; also it passes forth of the great hole through which the spinall marrow passes, vested with this *Crassa meninx*, with all the nerves and membranes. For which cause, if any membrane in the whole body be hurt, by reason of that continuation which it hath with the *Meninges*, it straight communicates the hurt to the head by consent.

The confi-
stence of the
Crassa meninx

The use,

The *Crassa meninx* is thicker and harder than all other membranes in the body; whereupon it hath got the name of the *Dura mater*, besides also it begirts, produces, and defends the other membranes.

What the
Torcular is.

One part of
the braine be-
ing hurt the
other keeps
the creature
alive.

The confi-
stence of the
Pia mater.

The sense of
the *Meninges*.

The use of it is to involve all the braine, and to keepe it when it is dilated, that it be not hurt by the hardnesse of the Scull. For the course of nature is such, that it alwayes places some third thing of a middle nature, betwixt two contraries. Also the *Crassa meninx*, yeelds another commodity, which is, that it carries the veines and arteryes entring the Scull for a long space. For they insinuate themselves into that part, where the duplicated or folded *Meninges* separate the braine from the *Cerebellum*, and so from thence they are led by the sides of the *Cerebellum*, untill they come, as it were, to the toppe thereof; where being united they insinuate themselves into that other part of the *Crassa meninx*, where in like manner being duplicated and doubled, it parts the braine at the top into the right and left; These united veines run in a direct passage even to the fore-head, after the manner of the Sagittal future; They have called this passage of the mutually infolded veines, the *Torcular*, or Presse, because the blood which nourishes the braine is pressed and drops from thence by the infinite mouthes of these small veines. Therefore also here is another use of the *Crassa meninx*, to distinguish the braine by its duplication, being it thrusts it selfe deepe into its body, into two parts, the fore and hind, and presently to separate the same into the right and left; that one part being hurt, the other may remaine safe and sound, performing its duty to the creature, as we see in some that have the Palsey. *Columbus* observed that this *Meninx* was double, and verily I have found it true by my owne sight.

The other *Meninx* or membrane of the braine, called *Pia mater*, is most slender interchased with divers veines and arteryes, for its owne and the braines nourishment and life. This doth not onely involve the Braine, as the *Crassa meninx* doth, but also more deeply penetrates into the anfractuons passages thereof, that it may every where joync and bind it to it selfe, not easily to be drawne from thence, by many small fibers whereby it descends even to the cavities of the ventricles thereof. Wherefore you must see it absolutely in the site as wee have mentioned, and not plucke it away unlesse with the substance of the Braine.

These membranes when they are hurt or afflicted, cause greivous and most bitter torment and paine; wherefore I dare say, that these membranes are rather the authors of sense than the braine it selfe, because in diseases of the Braine, as in the Lethargie, the party affected is troubled with litle or no sense of paine.

CHAP. VI.

Of the Braine.

Now followeth the Braine, the beginning of the nerves and voluntary motion, the instrument of the first and principall faculty of the Soule, that is, the Animall and Rationall. Man hath this part in greater plenty then any other Creature, for it almost fills the whole Scull. But if it should have filled it all, the Braine could not be moved, that is, dilated and contracted in the Scull. It is of a cold and moist Temperature. The laudible temper of the braine is knowne by the integrity and perfection of the internall and externall senses, the indifferency of sleepe and waking, the Maturity or ripenesse of judgment, and constancy of opinions, from which, unlesse it meet with better and more probable, it is not easie to be moved.

What the
braine is.

The quantity

Temper,

The first figure of the head, as it appeares when the scull is taken away.

The second figure shewing the Braine, the scull and Dura mater being taken off.

FIG. I.



II.



AA, BB. The *Dura meninx* or thicke membrane.

CCC. The third *Sinus* of this membrane.

DD. The course of the veines as they runne through the membrane, or the second veine of the braine.

EE. The first veine of the braine.

FFF. Certaine smal veines which perforate the scull and reach to the *pericranium* or Scull-skin.

GGG. Fibres of the *Dura meninx* passing through the Coronall Suture, which fibres make the *Pericranium*.

HH. fibres passing through the sagittall Suture.

II. Others passing through the Lambdall Suture.

K. A knob which useth to grow to the *Sinus* of the Scull.

L. A cavitie in the forehead bone.

M. The Scull.

N. The *Pericranium* or Scull-skinne.

Fig. 2.

AAA. A part of the *Crasse meninx* dividing the braine. *BB.* the third *Sinus* of the same *Crasse* membrane opened. *CC.* the beginning of the vessels out of the third *Sinus* into the *Pia mater*. *DDD.* the propagation or branches of these vessels. *EEE.* the *Pia mater* or thin *meninx* immediately compasing

the braine.

sing the braine. *FFF.* Certaine vessels running through the convolutions or branches of the braine. *GGG.* Certaine branches of veines running through the sides of the *dura meninx.* *HHH.* The thicke membrane reflected downeward.

You shall know the braine is more hott, by the quicknesse of the senses and motions of the body, by shortnesse of sleepe, the suddaine conceiving of opinions and change of them, by the slippery and failing memory, and lastly by easily receiving hurt from hot things, as the Sunne and Fire. Such as have a cold braine, are slow to learning, and to conceive other things, but they do not easily put away their once conceived opinions. They have slow motion to action, and are sleepy. Those who have a dry braine, are also slow to learne; for you shall not easily imprint any thing in dry bodyes, but they are most constant retainers of those things they have once learned; also the motions of their bodyes are quicke and nimble. Those who have a moist braine doe easily learne, but have an ill memory, for with like facility as they admit the species of things and imprint them in their minds, doe they suffer them to slide and slip out of it againe. So Clay doth easily admit what Character or impression soever you will, but the parts of this Clay which easily gave way to this impression, going together againe, mixes, obliterates and confounds the same. Therefore the senses proceeding from a cold braine are dull, the motions slow, the sleepe profound.

The Action.

Number.

The Action of the braine is to elaborate the Animall Spirit and necessary sense serving the whole body, and to subject it selfe as an instrument to the principall faculties, as to reason. The braine is twofold, the fore and hinde. The hinde by reason of its smallnesse is called the *Cerebellum*, (the litle or After-braine). But the fore by reason of its magnitude hath retained the absolute name of the braine. Againe this fore-braine is two-fold, the right and left, parted by that depression, which wee formerly mentioned, of the *Meninges* into the body of the braine. But this division is not to be here so absolutely taken, as though the Braine were exactly divided and separated into so many parts, but in the sense, as we say the Liver and Lungs are divided a pretty way, whereas at their *Basis* they have one continued body. The outward surface of the Braine is soft, but the inward hard, callous and very smooth; when on the contrary, the outward appeares indented and unequall with many windings, and crested as it were with many wormlike foldings.

CHAP. VII.

Of the ventricles and mamillary processes of the Braine.

The substance of the braine is porous and sweats forth blood.

The foure ventricles thereof.

The magnitude of the upper ventricles of the braine.



Or the easie demonstration of the ventricles of the braine, it is convenient you cut away a large portion thereof, and in your cutting observe the blood sweating out of the pores of it. But besides, it is fit you consider the spongy substance by which the excrements of the braine are heaped up, to be presently strained out, and sent away by the hollow passage. In the substance of the braine you must observe 4 ventricles, mutually conjoined by certaine passages, by which the spirits endued with the *species* of things sensible, may goe from one into another. The first and two greater, one on each side are placed in the upper braine. The third is under them in the middle part of the braine. The fourth and last at the fore side of the *Cerebellum*, towards the beginning of the spinall marrow. The two formost are extended the length way of the braine in the forme of a semicircle, whose hornes looke or bend outwards. They are spacious and large, because it was meet the Spirits contained there together with their excrements, should be there purified and clenfed; but in other ventricles, the pure and already elaborate spirits are onely received. These ventricles are white and smooth in their inner superficies; but that on each side they have an extuberancy at the midst of the semicircle, situate at the

basis

basis of the Pillar of the middle ventricle towards the nose under the *Septum lucidum* or cleere partition, severing or parting in sunder these two ventricles.

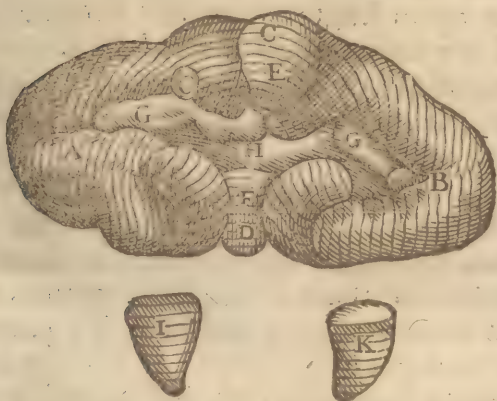
This *Septum lucidum*, or cleere or thin partition, is nothing else than a portion of the braine indifferently solide, but very cleere, that so through this partition the animall spirits contained in these two ventricles may mutually passe and bee communicated, and yet no other grosser substance may pierce the thin density thereof.

Wherefore it is not to be feared, that the water contained in one of the ventricles may passe to the other through this partitiō, as I have oft times observed to the great admiration of the spectators in the dead bodies of such as dyed of the Palsy, in which I have found the ventricle of that side which was taken with the palsy much dilated, according to the quantity of the water contained therein, the other being either wholly empty and without any; or certainly no fuller than in any other, dead through any other occasion. For some affirme that there is a certaine kind of waterish moisture alwaies to be found in the ventricles, which may be made by the condensation of the Animall spirits by the force of the deadly cold. But these two first ventricles of the braine goe into one common passage, as both the bellowes of a fornace, whereby the spirit instructed with the species of things goes into the under, or middle ventricle from the former. In these same first ventricles the *Plexus Choroides* is to be considered, and in like manner the passage by which the grosser excrements are driven or sent into the pituitary Glandule.

The *Septum Lucidum*.

Why the Palsie of one side is not presently communicated to the other.

The Third Figure represents the Cerebellum with the wormy processes separated from it.



AB, The right and left part of the After-braine.

CD, The anterior and posterior regions of the middle part of the After-braine.

E, The anterior wormy processe.

F, The posterior wormy processe.

GG, In this place the After-braine did grow to

the spinall marrow. H, The cavity in the spinall marrow maketh the fourth ventricle. IK, The anterior and posterior processes of the braine, called *vermi-formes* or the wormy processes.

This *Plexus Choroides* is nothing else, but a production of the *Pia mater* diversly folded with the mutuall implication of veines and arteryes woven in the forme of a net. These vessels are of magnitude and capacity sufficient, both to yeild life and nourishment to that part to which they are fastened, as also for the generation of the Animall spirits, as which take fit matter from the veines stretched fourth into this same *Plexus*, the hinde artery and veine *Torcular*, and also from the aire entring into the braine by the mamillary processes. But the mamillary processes are certaine common waies for conveyance of the aire and smells into the braine, and carrying of excrements from the braine.

The *Plexus Choroides*.

For thus in them who have the Catarrhe and *Coriza* or pose, neither the aire, nor smells can penetrate into the braine; whence frequent sneezings ensue, the braine strongly moving it selfe to the expulsion of that which is troublesome to it. But of the excrements of the braine, whether bred there, or proceeding from some other part, some are of a fumide and vaporious nature which breathe insensibly through the Sutures of the skull; Others are grosse and viscid, of which a great part is expelled by

The *Processus Mamillares*.

The use of
the upper
ventricles of
the Braine.

by both these productions, or through each of them. For thus in the Pose you may see some who have one of their nostrils stop't, the other running, and some who have both obstructed. The most proper benefit of the two first ventricles of the braine is to entertaine the Phantasie as in a convenient seat and habitation, seeing the minde there estimates and disposes in order the species of things brought in from the externall senses, that so it may receive a true judgement of them from reason which resides in the middle ventricle.

The ~~last~~ of
the third ven-
tricle of the
braine.
The parts to
be considered
in it.

The third ventricle is seated betweene the hindermost extremities of the former ventricles, and the last ventricle of the *Cerebellum*. In this sixe parts present themselves to our consideration, that is the *Psalloides* or Arch, the *Conarium*, or pine Glandule, the Buttocks, wormelike productions, the Bason and passage which is from this middle into the last and hindemost ventricle. The *Psalloides* or arch is nothing els, but the cover of the middle ventricle, resembling a rooffe borne up with three stayes or pillars, the one whereof is extended to the nose under the *Septum lucidum*, the two other on each side one, looke towards the backe part of the braine. This is the reason of this figure which is outwardly convexe and inwardly concave, to wit, that there might be free space for that motion which the Animall spirit inwardly produces, and besides that it might more easily sustaine the burden of the braine lying upon it. For an arched figure is the most convenient of all other to sustaine a waight.

What the
formix or
Arch is, and
the use thereof.

What the
Conarium or
pine Glandule
is.

The *Conarium* or Pine glandule, is a small Glandule of the same substance with the braine, round and somewhat long, like a pine Apple, from whence it hath the name; this Glandule is seated over against a small hole which descends to the lowest ventricle. It hath this use, to strengthen the division of the vessells led thither with the production of the *Pia mater* for the generation of the animall spirits, and the life and nourishment of the braine.

What the
Nates or But-
tocks are.

The *Nates* or Buttocks are subjected or placed under this Glandule, that is, bodies of a solid and white substance drawne out in length like a childs buttocks, especially in beasts, and chiefly in a sheepe. These buttocks have such a solid substance, that so they may keepe open and free the passage, or channell that runnes downe from the middle to the lower ventricle, by meanes of which the Braine participates with the *Cerebellum*.

What the
Worme is.

The worme is a production of the *Cerebellum* or After-braine, to wit a portion of the same being in the top or beginning and as it were in the entrance thereof, being like many litle circles or wheelles mutually knit together by slender membranes; and it is so called because it resembles those thicke white wormes which are found in rotten wood. It doth as it were performe the office of a porter to the formerly mentioned passage, that it may give way and entrance into the *Cerebellum* to a necessary quantity of spirits, when need requires; lest that, if they should rush with a suddaine violence into the *Cerebellum*, they might confound the imprinted notions of things to be remembred.

Here the *Pel-
vis* or Bason
is confounded
with the
Tunnell.

The *Pelvis* or Bason is a passage appointed for the carrying away of the grosse excrements by the palate, and is so called because it hath the similitude and use of a bason or Tunnell; it descends from the third ventricle into the Glandule which is seated betweene the processe of the wedge-bone called the saddle thereof, as you may perceive by putting in a spatherne. Now there remains the last of the sixe parts proposed to our consideration in the third ventricle, that is, the Channell or passage running from this third ventricle into the fourth, for the use formerly mentioned.

The Channell
from the third
into the fourth
ventricle.

This Channell descending in its originall from the Bason, goes from thence under the buttocks into the last ventricle, the *Meninges* being perforated; which that you may shew, it is fit you put the end of a spatherne through it. The benefit of the third ventricle is; that it may be as a Tribunall or judgment seate to the Reasoning faculty, when the mind will draw conclusions from things seene.

The fourth
ventricle of
the Braine.

The fourth ventricle is seated in the place we formerly mentioned; it is lesse than the rest, but more solide; lesse as that which was not to receive the spirit before it was purified, and clemented from all impurities; but more solid that it might containe it the safer. The use therof is, to be as a Treasury and store-house of the opinion, and

and judgments which reason shall decree, that when neede requires, wee may fetch and draw them from thence as laid up in store. I know *Galen*, and the Greeke Physicians have not so distinguished in places the three fore-mentioned facultyes; but have written, that they all are all over confused through the whole substance of the braine, which opinion also *Fernelius* in his *Pathologia* hath renewed. Yet I had rather follow this opinion, as commonly received and celebrated by the Arabian Physicians.

The Mammillary processes are the instruments and passages of smelling, being of the same substance with the braine, and like nerves, which runne out from the hinder horns of the upper or foremost ventricles of the braine to the *Ethmoides* and spongy bones of the nose, that hence they may receive the divers kinds of smells, and carry them into the Braine. But although they be like nerves, yet they are not accounted nerves because they go not out of the scull.

The use of the Mammillary processes,

The Fourth and Fifth figures of the Braine.

FIG. V.



Figure 5.

RRR, The lower superficies of the callous body reflected.

STV, The triangular surface of the *Fornix* or Arch.

XX, The lower part of the partition of the ventricles continued with the Arch.

rr, The upper part of the partition continued with the callous body.

Figure 6.

AAA, The lower surface of the Arch.

BC, Two corners of the Arch, by which it is continued with the ventricles.

DE, The right and left ventricles.

FG, Arteries climbing up from the sleepy arteries through the lower side of the ventricles for the forming of that complication of vessels which is called *Plexus choroides*.

H, A vessell issuing out of the fourth *Sinus* under the Arch, and passing into the third venticle.

IKL, The division of this vessell, a part whereof goeth to the right venticle at *K*, and another to the left at *L*.

MN, The *Plexus choroides* made of the artery *FG*, and the vessell *H*.

OO, Small veins passing thorough the ventricles of the braine, produced from the vessels *K* and *L*.

P, Other veins arising from the same, dispersed without the ventricles into the *Piamater*. *Q*, A passage from the third ventricle unto the *Basin* or *Tunnell*. *RS*, Canales or *Sinus* graven or furrowed in the substance of the ventricles, in which the phlegme is led along to the orifice of the foresaid passage marked with *Q*.

The

The Sixth figure of the Braine.



Figure 10.

AA, Parts of the spinall marrow cut from the braine.

BC, The places where this marrow did grow unto the braine.

DE, The Testicles. *FG*, The buttocks, *H*, the pine-glandule.

From *I* to *K*, A part of the third ventricle going to the fourth, under the Testicles.

KLMN, A part of the fourth ventricle which is engraven in the mar-

row. *O*, The top of the fourth venticle. *P*, The place where the spinall marrow goeth out of the skull. *Figure 11.* *AB*, Parts of the opticke nerves. *CD*, The sleepey arteries. *E*, The Bason or Tunnell hanging downe. *F*, A hole or perforation of the *dura meninx*, through which the Tunnell reacheth unto the glandule. *GG*, Parts of the second conjugation of sinnewes. *Figure 12.* *A*, The Glandule. *B*, The Bason or Tunnell called *Pelvis* or *Infundibulum*. *CDEF*, The foure holes thorough which the phlegmaticke excrement issueth.

CHAP. VIII.

Of the 7. conjugations of the Nerves of the Braine, so called, because they alwayes shew the Nerves conjoined and doubled, that, is on each side one.

What a Nerve
or Sinew is,

Yes substance.
Whether the
nerves have a
third mem-
brane from the
Ligaments of
the *Vertebra's*.

Their magni-
tude.
Their figure.

Their use.

Their number

The first con-
jugation of
nerves.



He nerves are the waies and instruments of the animall spirit and facultyes of which those spirits are the vehicles, as long as they are contained in the braine; they consist of the only and simple marrowey substance of the braine; or spinall marrow. But passing forth of the braine, they have another membranous substance which involves them joined with them from the two membranes of the braine; and according to the opinion of some Anatomists, they have also a third from the ligaments drawn as well from divers others, as from these by which they are tyed to the *Vertebra's*; Yet this opinion seemes absurd to me, seeing such a membrane, as that which is insensible, wholly repugnes the condition of a nerve, which is to give sense to the parts to which it is inserted.

The magnitude of the nerves is different, according to the divers necessity of sense incident to the parts into which they are inserted. Their figure is round, and long like to a conduit pipe to carry water in; the membranes of the braine, with which the nerves are covered, being dilated and stretched over them, after the same manner that the processes of the *Peritoneum* involves the spermatick vessels, with which they goe downe to the Testicles, and take life and nourishment by the capillary veines and arteryes, which descend to them with the membranes. They are made for this use, that they may impart sense to the sensitive parts, and motion to these that are fit to be moved. All the nerves descend from the braine either mediately, or immediately; their Number is seaven and thirty paire, or conjugations, whereof seaven have their originall immediately from the braine, the other thirty from the spinall marrow.

The first conjugation of the nerves of the braine is thicker than all the rest, and goes to the eyes, to carry the visive spirit to them. These ariseing from diverse parts of

of the braine, in the middle way before they goe out of the skull meet together crosse-wise like the Iron of a Mill (which is fastened in the upper stone) going into one common passage with their cavities not visible to the eye; that so the spirits brought by those two nerves may be communicated, and they are mutually joyned and meet together so, that being driven back from one eye they may flie backe into the other. An argument wherof may be drawn from such as aime at any thing, who shutting one of their eies, see more accurately; because the force of the neighbouring spirits united into one eye, is more strong than when it is dispersed into both. This conjugation when it comes into the glasse humour, is spent in the structure of the net-like coate which contains this humor on the backe part.

The second conjugation goes into many parts, at its passing forth of the skull, and in the bottome of the circle of the eye it is distributed into the seaven muscles moving the eyes.

The second conjugation.

The Seventh figure shewing the eight conjugations of the Nerves of the braine.

FIG. I.

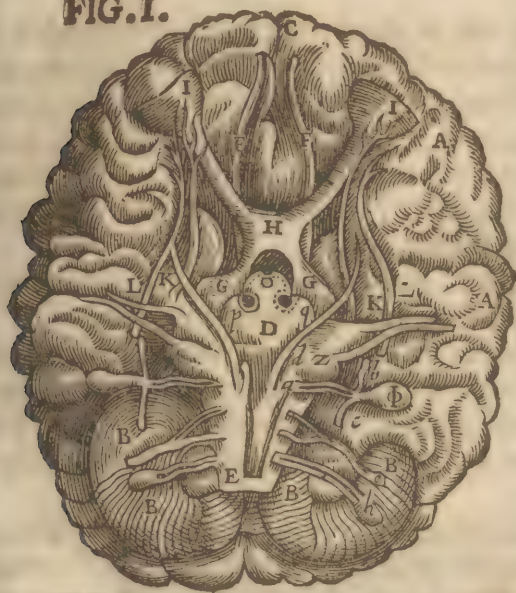


FIG. II.



AA, 2. The braine.

BB 1, 2. The After-braine.

CC 1, 2, the swelling of the braine which some call the mammillary processes.

DD 1, the beginning of the spinall marrow out of the Basis of the braine.

EE 1, 2, a part of the spinall marrow when it is ready to issue out of the skull.

FF 1, 2, the mammillary processes which serve for the sense of Smelling.

GG 1, 2, the opticke nerves.

HH 1, the coition or union of the opticke nerves.

II 1, 2, the coate of the eye where into the optick nerves is extended.

KK 1, 2, the second paire of the sinews, ordained for the motion of the eyes.

LL 1, 2, the third paire of sinews; or according to the most Anatomists, the lesser roote of the third paire.

MM 1, 2, the fourth paire of sinews, or the greater roote of the third paire.

NN 2, a branch of the third conjugation derived to the musculous skin of the forehead.

OO 2, a branch of the same to the upper jaw.

PP 2, another into the coate of the nofethrils.

QQ 2, another into the temporall

muscles. RR 2, a branch of the fourth conjugation crumpled like the tendrill of a vine.

SS 2, a branch of the same reaching unto the upper teeth and the gummes.

TT 2, another of the same to the lower jaw.

VV 2, a Surcle of the branch T, to the lower lip.

XX 2, another surcle from the branch T, to the rootes of the lower teeth.

Q 2

YY 2,

rr 2, the assumption of the nerves of the fourth conjugation unto the coate of the tongue. *z* 1, 2, the fourth paire are vulgarly so called which are spent into the coats of the pallat. *a* 1, 2, the fift paire of sinewes which belong to the hearing. *φ*, the *Auditory* nerve spred abroad into the cavity of the stony bone. ***, a hard part of the fift conjugation above, the *** which may be counted for a distinct nerve. *b* 1, 2, a small branch derived from this harder part of the first paire. *c* 1, 2, a lower branch from the same originall. *d* 1, 2, this nerve is commonly ascribed to the fift paire, but indeed is a distinct conjugation which we will call the Eight, because we would not interrupt the order of other mens accounts. *e* 1, 2, the sixt paire of sinewes. *f* 2, a branch from them derived to the neck and the muscles couched thereupon. *g* 2, another branch to the muscles of the Larinx or throttle, *b* 1, 2, the seventh paire of sinewes. *i* 1, the union of the seventh paire with the sixt. *l* 2, a propagation of the seventh paire to those muscles which arise from the Appendix called *Styloides*. *m* 2, Surcles from the seventh conjugation to the muscles of the tongue, the bone *Hyois* and the Larinx. *opq* 1, three holes; through the hole *o* the phlegme yssueth out of the third ventricle of the braine to the Tunnell, and at *p q*, is the passage of the *Soporary* arteries to the ventricles of the Braine.

The third conjugation.

The third is two-fold, in the passage out of the skull it is like-wise divided into many branches, of which some are carryed to the temporall muscles, into the *Massetes* or Grinding muscles, into the skinne of the face, forehead and nose; Othersome are sent into the upper part of the cheek, and the parts belonging to it, as into the teeth, gummies and the muscles of the upper lippe; and those which are called the round which incomasse the mouth on the inside; the last are wasted in the coate of the tongue, to bestow upon it the sense of tasting.

The fourth conjugation.

The fourth conjugation is much smaller, and is almost wholly wasted upon the coate of the Pallate of the mouth, to endue it also with the sense of tasting.

The fift conjugation.

The fift at its originall and having not as yet passed forth of the skull, is divided into two, and sends the greater portion thereof to the hole of the eare, or passage of hearing, that it may support the auditory faculty; and it sends forth the other lesser portion thereof to the temporall muscles by the passage next to it; by which the second conjugation passes forth.

The sixt conjugation.

The sixt being the greatest next to the first, passing entire forth of the skull, imparts some small branches to certaine muscles of the neck and throttle, and then descending into the chest, it makes the recurrent nerves, and dispersed over all the parts of the two lower bellyes, it passes even to the bladder and testicles, as wee shewed in the former booke.

The seventh conjugation.

The seventh is inserted and spent upon the muscles of the bone *Hyois*, the tongue and some of the throttle, to give them motion; it passes forth of the skull by the hole of the nowle bone at the extuberancies thereof.

CHAP. IX.

Of the Rete Mirabile, or wonderfull Net, and of the Wedge-bone.

The existence of the Animall spirit.

What the Rete Mirabile is.

The site, and number.



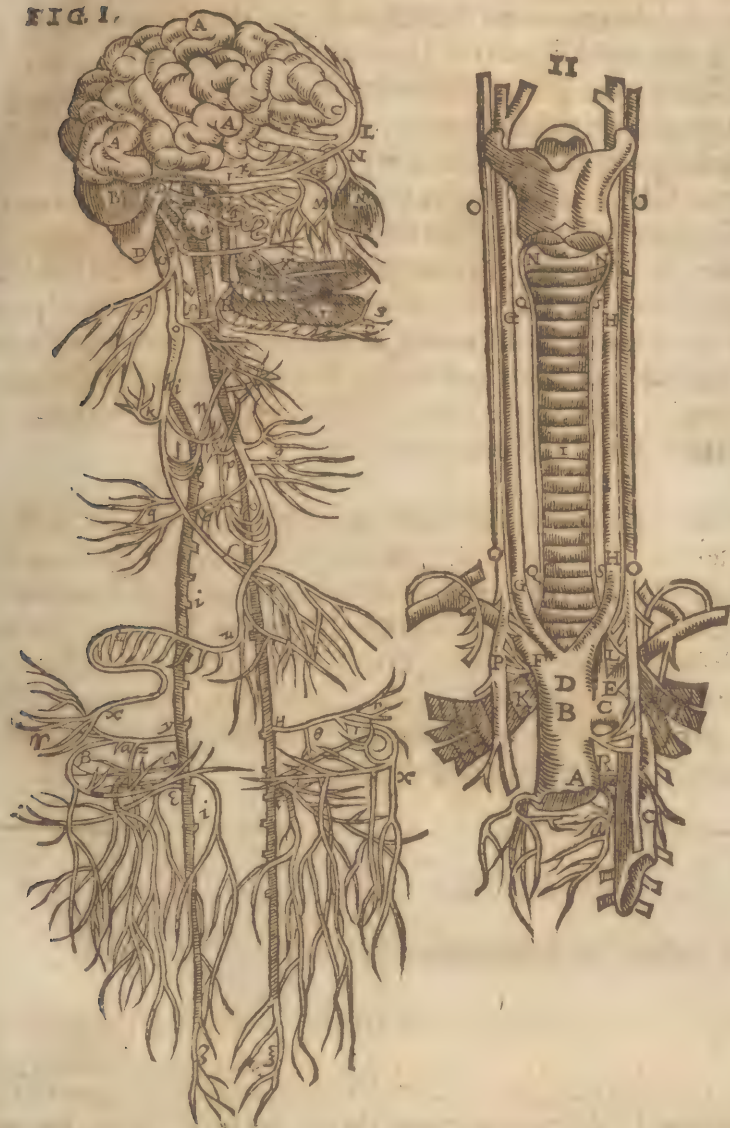
He Animall spirit is made of the vitall, sent from the heart by the internall sleepey Arteryes to the braine. For it was requisite that it should be the more elaborate, because the action of the Animall is more excellent than that of the vitall; nature hath framed a texture of Arteryes in many places running crosse one another, in the forme of a Net diverse times doubled; (whereupon it had the name of the wonderfull Net) that so the spirit by longer delay in these Labyrinthean or maze-like turnings, might be more perfectly concocted and elaborate, and attaine to a greater fittesse to performe the Animall functions.

This wonderfull Net scituate at the sides of the *Apophyses clinoides* or productions of the wedgebone, is twofold; that is, divided by the pituitary Glandule which is scituate

scituate betweene the said *Apophyses Clinoides*, having the wedgebone lying under them, next to the *Craffa Meninx*, being perforated on the right and left side, next to which lye bones as rare as a sponge even to the Pallate, by which the Phlegme is purged by the mouth and nose; and therehence, I thinke, that spittle flowes, which such as have a moist braine, continually spit out of their mouth.

The Eight figure of the braine.

FIG. I.



A, The Braine.

B, The Cerebellum or after-braine.

C, A proceffe of the brain, but not that which is called *Mammillaris*.

DD, The marrow of the backe as it is yet within the skul.

E, The *Mammillary* proceffe or instrument of smelling.

F, The opticke nerve.

G, The coate of the eye into which the opticke nerve is spread.

H, The nerve that moveth the eye or the second payre:

I, The third conjugation, or the harder and lesser branch of the nerves of the third conjugation brought forward.

K, The fourth conjugation or the greater and thicker nerve of the third payre bending downward.

L, A branch of the nerve marked with I, which goeth to the fore-head.

M, A nother branch of the nerve I, reaching to the upper jaw, NN, A nerve proceeding from the branch I, intexed or woven with the coat of the nose. O, The nerve of the temporall muscle issuing from the branch I. P, A nerve contorted of the nerves K and b. Q, A nerve proceeding from the branch K, to the sockets of the upper teeth. R, A nerve creeping from the nerve K, to the lower jaw. S, A surcle of the branch R, offered to the lower lip. TT, Other surcles from the branch R, attaining to the lower teeth. VV, A branch of the nerve K, diffused into the coate of the tongue. XX, The fourth paire of sinews which goe into the coate of the pallat. Y, The fifth paire of sinews which are the nerves of hearing. a, the membrane of the eare, unto which that fifth nerve goeth. bc, two small branches of the fifth conjugation uniting themselves with the nerve P. d, the eight conjugation or a nerve of the fifth paire attaining unto the face. ee, the sixt paire of nerves. f, A branch from the nerve e, reaching to the muscles of the neck. g, Small branches derived unto the throttle or *larynx*. h, the byfurcation of the nerve into two branches. iii, An inner branch hanging to the rackbones, and strengthening the *intercostall* nerves, and is therfore called *Intercostalis*. kk, Surcles of the utter branch going to the heads of the muscles, to the breast-bone and to the collar-bones. lm, branches of the right nerve I, making the right Recurrent nerve.

mm, the infertion of the recurrent sinews into the muscles of the *larinx*. *op*, branches of the left nerve making the left recurrent sinew *p. qq*, branches from the sixth conjugation going to the coats of the lungs. *r*, small nerves of the heart and of the purse thereof called the *Pericardium*, as also some approaching to the coats of the lungs. *s*, nerves on either side sent to the stomach. *t*, the right stomacke nerve going to the left orifice of the stomach. *uu*, the left stomach nerve going to the right orifice of the stomach. *x*, a nerve from the branch *u*, passing into the hollownes of the liver. *y*, the nerve belonging to the right side of the keil. *z*, the nerve belonging to the collick gut. *a*, a nerve creeping to the gut called *duodenum* and the beginning of the *jejunum* or empty gut. *β*, a nerve implanted in the right side of the bottome of the stomach. *γ*, a nerve belonging to the liver and bladder of gall. *δ*, a nerve reaching unto the right kidney. *ε*, a branch reaching the *Mesenterium* and the guts. *ζ*, a branch sprinkled to the right part of the bladder. *η*, a branch going through the left part of the kel. *θ*, furcles derived to the collick gut and the kel. *κ*, small branches inserted into the spleen. *λλ*, a nerve approaching to the left side of the bottome of the stomach. *μ*, a branch belonging to the left side of the *Mesentery* and the guts. *ν*, a branch which attaineth to the left kidney. *ξ*, small nerves creeping through the left side of the bladder. *ο*, the seven paire of sinewes. *π*, a branch derived from the sixth conjugation to the muscles which arise from the proesse called *Styloides*. *ρ*, a branch of the seventh conjugation which goeth to the muscles of the tongue, of the bone *hyois*, and of the throtle or *larinx*. *ς*, A conjunction or coition of the 6. and 7. paire into one nerve.

What the
Apophyses Cli-
noides are.

Whether the
Retemirable
differ from the
Plexus choroi-
des,

These *Apophyses clinoides* are certaine productions of the *Os basilare* or wedge bone, (called the Saddle thereof,) between which, as I said, the pituitary glandule lies with part of the wonderfull net. There is a great controversie amongst Anatomists concerning this part; for *Vesalius* denies that it is in man, *Columbus* admits it, yet hee seemes to confound it with the *Plexus Choroides*. Truly I have observed it alwayes after the manner, as *Sylvius* alledges against *Vesalius*. It remaines, that we recite the perforations of the skull, because the knowledge of these much conduces to the understanding of the insertions of the veines, arteries and nerves.

CHAP. X.

Of the holes of the inner Basis of the Skull.

IN the first place are reckoned the holes of the bone *Ethmoides*; then those of the optick nerves; thirdly of the nerves moving the eyes. Fourthly of that portion, of the nerves, of the fourth conjugation which goe to the temporall muscles. Fifthly are reckoned, these holes scarce visible, situate under the pituitary glandule, by which the spittle is evacuated. Sixthly that hole which is in the wedge bone made for the entrance of the internall sleepey Arteries, composing the wonderfull Net, and then passing into the braine by a great slit. That perforation which we reckon in the seventh place is commonly double, made for the entrance of one of the branches of the internall Iugular veine. The eight hole is somewhat long, of an ovall figure, by which, part of the third conjugation and all the fourth conjugation passes forth. The ninth are the auditory passages. The tenth are very small holes, and give way to the veine and artery going to the auditory passage, above the *foramen cæcum*. In the eleaventh place are reckoned the perforations which yeild passage forth to the sixth paire of nerves, to part of the sleepey Arteries, and of the internall jugular. In the twelvth those which yeild a way out to the seventh conjugation; The great hole of the Nowle bone through which the spinall marrow passes is reckoned the thirteenth. The fourteenth is that, which most commonly is behinde that great hole, by which the Cervicall veines and arteries enter in.

CHAP. XI.

Of the perforations of the externall Balis of the Braine.

T Here is a hole on each side at the Eye-browes, by which passes a small nerve from the third coniugation comming out of the cavity of the Orbe of the eye, and going by the forehead bone to the eye-browes, that it may give motion to the two muscles of the upper eye-brow and forehead. Yet oftentimes the hole is but to bee seene on one side, oft times there is a cleft instead thereof, otherwhiles it is not perforated nor cleft at all. The second, is the perforation of the greater corner of the eye, by which a portion of the nerves of the third coniugation descends to the coate of the nose; in this hole the *Glandula Lachrymalis* is seated. The third is seated under the eye, that it may give way to the other portion of the nerves of the third coniugation going to the parts of the face, and the teeth of the upper jaw. The fourth is at the beginning of the pallate, amongst the cutting or shearing teeth, through which a veine, an artery and the coate of the pallate passes out. In the fifth order are reckoned the perforations of the pallate, by which the nerves descend from the fourth coniugation, to give, or cause the taste. In the sixth order are ranked the holes of the pallate serving for respiration, and the flegme falling from the braine by the nosethrils. And there is a cleft under the yoake bone ascending into the Orbe of the eye, by which there is a way, as wel for the nerves of the third coniugation to the Temporall muscles, as also for certaine veines and arteryes. But also there is noted another hole at the mammillary proceffe, which is not perforated in the iudgement of the sense. Besides there is thought to be another at the hinde roote of the same proceffe, by which a certaine small veine passes from the Iugular to the *Torcular*. But I have onely noted these three passages by the way, because there is so much variety in them, that nothing can be certainly said of them.

CHAP. XII.

Of the Spinall Marrow, or Pith of the Backe.

T He spinall Marrow is like a River running from the fountaine of the braine. This sends nerves for sense and motion to all the neighbouring parts under the head, spreading its branches as from the body of a tree. These branches, as we shall hereafter shew, are on each side thirty. This same spinall marrow is covered with the two membranes investing the braine, distinguished by no distance of place, as in the braine. But also it hath another membrane added to these, being very hard and dense, which keeps it from being broken and violated by the violent bending of the body forewards and about. The diseases of this marrow doe almost cause the like Symptomes, as the diseases of the braine; For they hurt the sense and motion of all the parts lying beneath them, as for example; If any of the vertebra's of the back bone, be moved out of their place, there followes a distortion or wresting aside of the Marrow; but then especially if it happen that one of the vertebra's be strained, so sharpe and bitter a compression urges the marrow by reason of the bony body of the vertebra, that it will either rend it, or certainly hinder the passage of the spirit by it. But by these same holes of the vertebra's the veines and arteryes goe to the spinall marrow for to give life and nourishment to it, as the nerves by them passe forth into all the lower parts of the body.

What the Spinall marrow is.

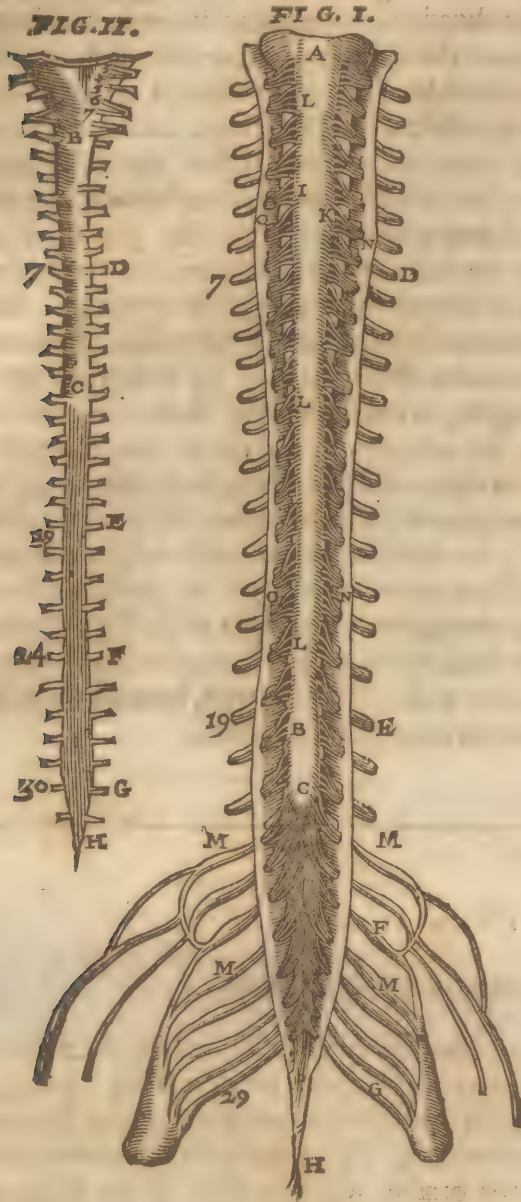
The coats of the spinall marrow.

The diseases from the hurting of the spinall marrow.

Figure 1. sheweth the forme of the spinall marrow properly so called, with its membranes, and the nerves proceeding from it.

Figure 2. The spinall marrow naked and bare, together with its nerves, as most part of Anatomists have described it.

The tenth figure of the spinall marrow.



- A**, The beginning of the spinall marrow where it falls out of the skull.
B, The thicknesse thereof in the spondels or rack-bones of the loynes.
C, The division thereof into strings, or hairy threds.
D, the seven nerves of the necke.
 From **D** to **E** or from 7, to 19, shew the nerves of the backe.
 From **E** to **F**, the nerves of the loynes.
 From **F** to **G**, the nerves of the *os sacrum* or holy bone.
H, the end of the marrow.
I K L, do shew how the nerves doe issue from the marrow in strings.
M M, the knots of the sinewes made of the conjunction of those strings.
N O, the membranes that invest the marrow.

Figure 2.

- A**, The beginning of the spinall marrow in the skull.
3, 4, 5, 6, 7, These Characters shew (according to *Vesalius* opinion) how the conjugations of the nerves of the braine doe take their originall from the marrow remaining yet within the Skull.
B, The egress of the spinall marrow out of the skull.
C, The cords or strings whereinto it is divided.

D 7, The marrow of the necke and seven paire of sinewes. **E 19**, twelve paires or conjugations of nerves proceeding from the marrow of the Chest. **F 24**, The marrow of the loynes and 5. paire of sinewes. **G 30**. the marrow of the holy-bone and 6, paire of sinewes. **H**, the extremity or end of the spinall marrow.

The End of the Fifth Booke.

THE



THE SIXTH BOOKE TREATING OF

the Muscles and Bones, and the other
Extreme parts of the Body.

The Preface.

IF peradventure some may wonder, that I have ended my fifth booke of Anatomie, before I have fully described all the parts of the head, the which seemed as it were onely appointed for that purpose. Therefore I must yeeld a reason of this my intention. I have a desire in one Treatise and as it were at one breath, to prosecute the Anatomy of the Muscles. Wherefore because the parts of the head not yet described, principally consist of the Muscles, therefore I desired to comprehend them together with this same description of the extreme parts of the body; beginning at the upper part of the face, to wit, the eyes: but having first described the bones of the face, without the knowledge of which it is impossible to shew the originall and insertion of the Muscles. We have formerly noted that by the face is meant whatsoever lyes from the Eye-browes even to the Chin. In which there is such admirable industry of nature, that of the infinite multitude of men you cannot finde two so like, but that they may be distinguished by some unlikenesse in their faces; also it hath adorned this part with such exquisite beauty, that many have dyed by longing to enjoy the beauty desired by them. This same face albeit it little exceeds halfe a foote, yet it indicates and plainly intimates by the suddaine changes thereof, what affections and passions of hope, feare, sorrow and delight possesse our minds; and what state our bodies are in, sound, sicke or neither. Wherefore seeing the face is of so much moment, let us returne to the Anatomicall description thereof, which that wee may easily and plainly performe wee will begin with the bones thereof, whereby, as we formerly sayd, the originall and insertion of the Muscles may be more certaine and manifest to vs.

The description of the bones being unknowne it must necessarily follow that the originall and insertion of the muscles must be so also

The endowments of the face.

The creature's nature is the bewrayer of the will.

CHAP.

CHAP. I.

Of the bones of the Face.

Bones in each
orbe of the
Eye.

What the
Zygoma is and
what use it
hath.

The *Ægylops*.

The two
bones of the
nose.
The two in-
ner bones of
the palate.



He bones of the face are 16, or 17, in number. And first, there be reckoned 6 about the Orbs of the eyes, that is 3 to each orbe, of which one is the bigger, another lesser, and the third between both; each of these touch the forehead bone in their upper part. Besides, the greater is joyned with a suture to the proceffe of the stony bone, and so makes the *Zygoma*, that is, the *Os Iugale* or yoake bone, framed by nature for preservation of the temporall muscle. The lesser is seated at the greater corner of the eye, in which there is a hole perforated to the nose, and in this is the glandule in which the *Ægylops* doth breed. The middle is in the bottome, or inner part of the orbe, very slender & as it were of a membranous thinnesse: then follow the two bones of the nose which are joyned to the forehead bone by a suture, but on the foreside between them selves by harmony. But on the backe or hinde part with two other bones, on each side one, which descending from the bone of the forehead (to which also they are joyned by a suture) receive all the teeth. These two in *Galens* opinion are seldome found separated. But these are the thickest of all the bones of the face hitherto mentioned, knit by a suture with the greatest bone of the Orbe, on the backe part with the wedge-bone, on the inner side with the two little inner bones of the pallate, which on the inside make the extremity thereof, whereby it comes to passe, that we may call these bones the hinder, or inner bones of the pallate. They reckon one of these bones the eleventh and the other the twelfth bone of the head; these two little bones on their sides next to the winged productions of the wedge-bone, receive on each side one of the nerves of the fourth conjugation, which in the former booke, we said were spent upon the membrane of the pallate.

The two
bones of the
jaw.

Two pro-
ductions on
each side
of the lower
law.

And in *Galens* opinion there be other two in the lower law, joined at the middle of the chin; although some thinke it but one bone, because by the judgement of sense there appeares no division or separation therein. But you may see in children how true this their supposition is, for in men of perfect growth it appeares but one bone; these two are reckoned for the thirteenth and fourteenth bones. Now these two bones making the lower law, have in their back part on each side two productions, as they lye to the upper law, the one of which represents the point of a sword, and is called the *Corone*; the other is obtuse and round, which is inserted into the cavity seated at the root of the proceffe of the stony bone, nere to the passage of the eare.

The Luxation
of the lower
law.

This may be strained to the forepart by violent gaping, by retraction of the muscles arising from the wing-like proceffes, and ending at the lower angles of the broader part of the same law.

The lower
law filled
with a mar-
rowy humor.

This law is hollow as also the upper, especially in the back-part, being filled with a white and glutinous humor, conducing to the growth of the teeth. This humor hath its matter from the blood brought thither by the vessels, veines, Arteryes and nerves from the third coniugation entring in here by a passage large enough. Whereby it comes to passe, that this part is not only nourished and lives, but also the teeth receive sence by the benefit of the nerves entring thither with the veine and artery, by small holes to be seene at the lower roots of the teeth; and thence it is that a beating paine may be perceived in the tooth-ach, because the defluxion may be by the arteryes; or rather because the humor flowing to the roots of the teeth may presse the artery in that place; beside also you may see some apparance of a nervous substance in the root of a tooth newly pluckt out.

How the teeth
feele.

Why the teeth
have a beating
paine.

The nerves of
the Lower
law must be
observed.

But also you must consider, that this law from its inner capacity produces at the sides of the chin two nerves of a sufficient magnitude, over against the lower dog-teeth and the first of the smaller grinding teeth, as I have noted in the description of the nerves of the third coniugation. I have thought good to put thee in minde of these, that when thou shalt have occasion to make incision in these places, thou maiest warily and discreetly handle the matter, that these parts receive no harme.

There

There remaines another bone seated above the pallate, from which the gristlely partition of the nose arises, being omitted of all the Anatomists, for as much as I know. Now therefore that you may the better remember the number of the bones of the face, I will here make a repetition of them.

The bone of the nose above the palate, or the partition of the nose.

There are sixe of the orbs of the eyes, at each three. The seventh and eight wee may call the Nasall, or nose bones. The ninth and tenth the Jaw-bones. The eleventh and twelfth are called the inner bones of the pallate. The thirteenth and fourteenth the bones of the lower Jaw. The partition of the nose may be reckoned the fifteenth.

Now it remaines having spoken of these bones, that wee treat of the teeth, the Eye-browes, the skinne, the fleshy pannicle, the Muscles, and lastly the other parts of the face.

CHAP. II.

Of the Teeth.



The Teeth are of the number of the bones, and those which have the most have thirty two, that is, sixteene above, and so many below; of which in the forepart of the mouth there are foure above and as many beneath, which are called *Incisorij* cutting or shearing teeth, to cut in sunder the meat, and they have but one root. To these are ioyned two in each Jaw, that is, on each side of the other one, which are called *Canini dentes*; Dogges-teeth, because they are sharp and strong like dogges teeth; these also have but one roote; but that is farre longer than the other have.

The teeth are bones.

The shearing teeth.

The Dogteeth

Then follow the *Molares* or Grinders, on each side five, that is, tenne above and as many below, that they may grinde, chew and breake the meat, that so it may be the sooner concocted in the stomack; for so they vulgarly thinke, that meat well chewed is halfe concocted; those grinders which are fastened in the upper jaw, have most commonly three roots, and oft times foure. But these which are fastened in the lower, have only two roots, and sometimes three, because this lower jaw is harder than the upper so that it cannot be so easily hollowed, or else because these teeth being fixed and firmly seated, needed not so many staves as the upper, which as it were hang out of their seats. The shearing teeth cut the meat because they are broad and sharp; the Dog-teeth break it because they are sharp pointed and firme; but the grinders being hard, broad and sharp, chew and grind it asunder. But if the grinders had beene smooth, they could not fitly have performed their duty, for all things are chewed and broken asunder more easily by that which is rough and unequall.

The Grinding teeth.

Why the upper grinding teeth have more rootes.

The use of the teeth.

Wherefore they sharpen their Millstones when they are smoother than they should be, by picking them with a sharp Iron. The teeth are fastened in the jawes by *Gomphosis*, that is, as a stake or naile, so are they fixed into the holes of their jawes; for they adhere so firmly thereto in some, that when they are pluckt out, part thereof followes together with the tooth; which I have often observed to have beene also with great effusion of blood. This adhesion of the teeth fastened in their jawes is besides strengthened with a ligament, which applyes it selfe to their roots together with the nerve and vessels. The teeth differ from other bones, because they have action whilest they chew the meat; because being lost they may be regenerated, and for that they grow as long as the party lives, for otherwise by the continuall use of chewing they would be worne and wasted away by one another. You may perceive this by any that have lost one of their teeth, for that which is oppositeto it becomes longer than the rest, because it is not worne by its opposite. Besides also they are more hard and solide than the rest of the bones, and indued with a quick sense by reason of the nerves of the third conjugation which insert themselves into their roots; for if you rub, or grind a tooth newly pluckt out, you may see the remaines of the nerve; they have such quick sense, that with the tongue they might judge of tastes. But how feeble the teeth, seeing they may be filed without paine? *Fallopianus* answeres, that the teeth feeble not in their upper or exterior part, but only by a membrane which they have within. And

The teeth are fastened in the Jawes by Gomphosis.

The fastening of the teeth into the jawes is to be observed.

Wherein the teeth differ from the other bones.

For what use the teeth have sense.

the

The foreteeth
helpe for the
articulation of
the voyce;

the teeth have another use, especially the fore-teeth, which is, they serve for distinct and articulate pronuntiation; for those that want them fault in speaking, as also such as have them too short, or too long, or ill ranked. Besides, children speak not distinctly before they have their foreteeth. And you must note that the infant as yet shut up in its mothers womb hath solide and bony teeth; which you may perceive by dissecting it presently after it is borne.

But even as there are two large cavities, in the forehead bone at the eye-browes, filled with a viscous humor, serving for the smelling; and in like manner, the aire shut up in the mamillary processes is for hearing; so in the jawes there be two cavities furnished with a viscid humor for the nourishment of the teeth.

CHAP. III.

Of the Broade Muscle.



Now we should prosecute the containing parts of the face, to wit the skin, the fleshy pannicle and fat; but because they have beene spoken of sufficiently before, I will onely describe the fleshy pannicle, before I come to the dissection of the eye, that wee may the more easily understand, all the motions performed by it, whether in the face or forehead.

First that you may more easily see it, you must curiously separate the skin in some part of the face. For unlesse you take good heed, you will pluck away the fleshy pannicle together with the skinne, as also this broad muscle to which it immediatly adheres, and in some places so closely and firmly, as in the lips, eye-lids and the whole forehead, that it cannot be separated from it. Nature hath given motion, or a moving force to this broad muscle, that whilst it extends, or contracts it selfe, it might serve to shut and open the eye. It will be convenient to separate the muscle thus freed from the skin, beginning from the forepart of the clavicles even to the chin, ascending in a right line, and then turning backe as far as you can; for thus you shall shew how it mixes it selfe with the skinne and the muscles of the lips.

There are no
particular
muscles ap-
pointed to
open and shut
the eye, for
that is the
worke of the
broad muscle
onely.
Divers reasons
to that pur-
pose.

When thou shalt come to the Eyes, thou shalt teach how the eye is shut and opened by this one muscle, because it is composed of the three sorts of fibers; although by the opinion of all who have hitherto written of Anatomy, those actions are said to be performed by the power of two muscles appointed for that purpose; one of which is at the greater corner on the upper part, the other resembling a semicircle at the lesser corner, from whence extending it selfe to the middle of the gristle *Tarsus*, it meets with the former ending there, but they are in part extended over all the eyelid, whereby it commeth to passe that it also in some sort becometh moveable. But although in publike dissections these two muscles are commonly wont to be solemnly shewed, after the manner I have related; yet I thinke, that those which shew them know no more of them, than I doe. I have grounded my opinion from this, that there appeares no other musculous flesh in these places, to those which separate the fleshy pannicle, or broad muscle, than that which is of the panicle it selfe, whether you draw your incision knife from the forehead downwards, or from the cheek upwards.

Why you
must take
heede of ma-
king a trans-
verse incision
upon the eye-
browes.

The action of
a muscle.

Besides when there is occasion to make incision on the eye-browes, we are forbidden to doe it transverse, least this broad muscle falling upon the eye, make the upper Eye-lid unmoveable; but if such a cut be received accidentally, we are commanded presently to stitch it up; which is a great argument that the motion of the upper eye-lid is not performed by its proper muscles, but wholly depends and is performed by the broad muscle. Now if these same proper muscles which we have described should be in the upper eye-lid, it should be meet, (because when one of the muscles is in action, the other which is its opposite or Antagonist, rests or keeps holiday,) that when that which is said to open the eye is imployed, the opposite thereof resting, the upper eye-lid should be drawne towards its originall, as we see it happens in convulsions: because the operation of a muscle is the collection of the part which it moves towards its originall.

Therefore

Therefore seeing such a motion or collection appears not any where in the eye-lid, I thinke it therefore manifest that all the motion of this upper eye-lid depends upon this broad muscle, and that it alone is the author of the motion thereof.

The originall of this broad muscle is from the upper part of the *Sternum*, the clavicles, the shoulder blades, and all the spines of the *vertebra's* of the neck: but it is inserted into all these parts of the head which want haire, and the whole face, having divers fibers from so various an originall. by benifit of which it performes such manifold motions in the face (for it so spreads it selfe over the face, that it covers it like a vizard) by reason of the variety of the originall and the production of the divers fibers of this muscle. But I have not in the description of this muscle prosecuted those nine conditions, which in the first booke of my anatomy I required in every part, because I may seeme to have sufficiently declared them in the description of the muscles of the *Epigastrium*. Wherefore hence forward you must expect nothing from me in the description of muscles besides their originall, insertion, action, composition, and the designation of their vessels.

The originall of the broad muscle.
The insertion and reason why we express so many motions with the face.

CHAP. IIII.

Of the Eye-lids and Eye-browes.

BEcause wee have fallne into mention of the Eye-lids and Eye-browes, and because the order of dissection also requires it, we must tell you what they are, of what they consist, and how and for what use they were framed by nature. Therefore the Eye-browes are nothing els, than a ranck of haire set in a semi-circular forme upon the upper part of the orbe of the Eye, from the greater to the lesser corner thereof, to serve for an ornament of the body and a defence of the eyes against the acrimony of the sweat falling from the forehead.

What the eye-browes are.

Their use

But the Eye-lids on each side two, one above and another below, are nothing els than as it were certaine shuttings appointed and made to close and open the eyes when need requires, and to containe them in their orbes. Their composition is of a musculous skin, a gristle and haire set like a pale at the sides of them to preserve the eyes when they are open, chiefly against the injuries of small bodyes, as motes, dust & such like. These haire are alwaies of equall and like bignesse, implanted at the edges of the gristly part, that they might alwaies stand straight and stiffe out. They are not thick, for so they should darken the eye. The gristle in which they are fastened is encompassed with the *pericranium* stretched so far before it produce the *Coniunctiva*. It was placed there, that when any part thereof should be drawne upwards or downewards by the force of the broad muscle or of the two proper muscles, it might follow entirely and wholly by reason of its hardnes. They call this same gristle, especially the upper, *Tarsus*. The upper and lower eye-lid differ in nothing, but that the upper hath a more manifest motion, and the lower a more obscure; for otherwise nature should have in vaine encompassed it with a musculous substance.

What the eye-lids are.

Their composition and use.

What the Tarsus is.

CHAP. V.

Of the Eyes.

THE Eyes are the instruments of the faculty of seeing, brought thither by the visive spirit of the opticke nerves, as in an aqua-ducte. They are of a soft substance, of a large quantity, being bigger or lesser according to the bignesse of the body. They are seated in the head, that they might overlooke the rest of the body, to perceive and shun such things as might endanger, or en-damage the body; for the action of the eyes is most quick, as that which is performed in a moment, which is granted to none of the other senses. Wherefore this is the most excellent sense of them all. For by this wee behold the fabricke and beauty of the heavens

What the eyes are.

Their site,

The quicknes, and excellency of their action

heavens and earth, distinguish the infinite varieties of colours, we perceive and know the magnitude, figure, number, proportion, site, motion and rest of all bodies. The eyes have a pyramidall figure whose basis is without, but the Cone or point within at the opticke nerves. Nature would have them contained in a hollow circle, that so by the profundity and solidity of the place they might be free from the incursions of bruising and hurtfull things.

Figure. They are composed of six muscles, five coats, three humors, and a most bright spirit, (of which there is a perpetuall afflux from the braine) two nerves, a double veine, and one artery, besides much fat, and lastly a Glandule seated at the greater angle thereof, uppon that large hole which on both sides goes to the nose, and that, lest that the humours falling from the braine should flow by the nose into the eyes, as we see it fares with those whose eyes perpetually weep, or water, by reason of the eating away of this glandule, whence that affect is called, the *Fistula lachrymalis*, or weeping Fistula.

Composition. But there is much fat put between the muscles of the eye, partly that the motion of the eyes might be more quick, in that slipperines of the fat, as also that the temper and complexion of the eyes, and chiefly of their nervous parts, might be more constant and lasting, which otherwise by their continuall and perpetuall motion would be subject to excessive drynesse. For nature, for the same reason hath placed Glandules flowing with a certaine moisture, neere those parts which have perpetuall agitation.

Glandula Lachrymalis.

Fistula Lachrymalis.

Why fat is placed about the eyes.

CHAP. VI.

Of the Muscles, Coats and humors of the Eye.

The number, site and action of the muscles.



Here are sixe muscles in the eye, of which foure performe the foure direct motions of the eye: they arise from the bottome of the orbe, and end in the midst of the eye encompassing the opticke nerve. When they are all moved with one endeavour, they draw the eye inwards. But if the upper only use its action, it drawes the eye upwards; if the lower, downewards; if the right, to the right side; if the left, to the left side.

The two other muscles turne the eye about, the first of which being the longer and slenderer, arises almost from the same place, from which, that muscle arises which drawes the eye to the right side to the greater corner. But when it comes to the utmost part of the inner angle, where the *Glandula lachrymalis* is seated, it ends in a slender Tendon, there peircing through the middle membrane which is there, as through a ring; from whence it presently going backe is spent in a right angle towards the upper part of the eye, betwixt the insertions of those 2 muscles, of the which one draws the eye upwards, the other directly to the outward corner, as it is observed by *Fallopins* or rather, which I remember I have alwaies observed, they turne between the muscles which move the eye upwards, and to the inner corner.

This fifth muscle when it is drawne in towards its beginning, so drawes the eye with its circular tendon, that it carries it to the greater corner.

The sixt muscle is contrary to that, for it hath its originall from the lower part of the orbe at a small hole, by which a nerve of the third conjugation passes forth; and being that it is most slender, whilest it ascends transversely to the outward corner, it involves the eye so also, that it is inserted in it by a small Tendon, so that the Tendons of them both are oftentimes taken but for one. That thou maiest truely and accurately observe this anatomick description of the eye; the eye must not be pluckt out of its orbe, but rather the orbe it selfe must be broken and separated.

The 5 coats of the eye.

I
Conjunctiva, or Adnata.

For thus thou shalt certainlie and plainelie see the forementioned originall of the muscles. For the five coats, the first which is first met with in dissection, comes from the pericranium, and is extended over all the white of the eye, even to the *Iris* or Rainbow. The duty of it is to strengthen, bind and containe the eye in its orbe, wherefore it had the name *Conjunctiva*, others call it *Adnata*, or *Epipephycos*.

The

The second is called the *Cornea*, because it resembles a horne in colour and consistence; this coat differs and varies from it selfe, for in the forepart, as far as the *Iris* goes, it is clear and perspicuous, but thick & obscure in the hinde part, by reason of the diverse polishing. On the fore-part it is dense that it may preserve and containe the Christalline and waterish humor, but withall transparent so to give the object a freer passage to the Chrystalline. It hath its originall from the *Crassameninx*, proceeding forth from the inner holes of the orbe of the eye, for it compasses the eye on every side.

2.
(*cornea*), or the
Horny coate.

The third is called the *Vvesa* or Grapy coat, because in the exterior part it represents the colour of a black grape; it arises from the *Pia mater*, and encompasses all the eye, except the *pupilla* or apple of the eye, for here being perforated, it adheres to the horny coate by the veines and arteries which it communicates to it for life and nourishment. But when it arrives at the *Iris*, then forsaking the *Cornea*, it descends deep into the eye, and in some sort is turned about the Christalline humour, to which also it most firmly adheres, so bounding the waterish humor, and also prohibiting that the Albugineous humor doe not overwhelm the Christalline. This grapy coate is as it were dyed on the inside with divers colours, as black, browne, blew, or green like a raine-bow, and that for these ensuing benifits.

3
Vvesa, or the
grapy coate.

Why the grapy
coate re-
sembles divers
colours.

The first is, if that it had beene tintured with one colour, all objects would have appeared of the same colour, as it comes to passe when we looke through green or red glasse. But it must be coloured, that so it may collect the spirits dissipated by the Sunne and seeing.

Thirdly it was convenient it should be painted with infinite variety of colours for the preservation of the sight. For as the extreame colours corrupt and weaken the sight, so the middle refresh and preserve it, more or lesse as they are neerer, or further remote from the extremes. It was fit it should be soft, that so it might not hurt the Christalline humor uppon whose circumference it ends; and perforated in the part objected to it, least by its obscurity it should hinder the passage of the objects to the Christalline, but rather that it might collect by its blacknes as a contrary, the great and as it were diffused variety of colours, no otherwise than wee see the heat is strengthened, by the opposition of cold; some call this coat *Choroides*, because it is woven with many veines and arteries, like the coat *Chorion* which involves the infant in the wombe.

Now followes the fourth coate called *Ampiblistroides* or *Retiformis*, the Net-like coate, because proceeding from the opticke nerve dilated into a coate, it is woven like a net with veines and arteries which it receives from the grapy coate, both for the life and nourishment both of its selfe, as also of the glassie humor which it encompasses on the back part. The principall commodity of this coate is, to perceive when the Christalline humor shall be changed by objects, & to leade the visive spirit instructed or furnished with the faculty of seeing, by the mediation of the glassie humor, even to the Christalline being the principall instrument of seeing. It is softer than any other coate, least the touch of it should offend that humor. Wherein thou wilt admire the singular order of nature, which as in other things it passes not from one extreme to another unlesse by a *Medium*, so here it hath not fitted the hard horny coate to the soft humors, but by interposition of divers *media* of a middle consistence. For thus after the harder coats *Adnata* and *Cornea* it hath placed the Grapy coate, by so much softer then these two, as the Net-like coat is softer then it, that thus it might passe from extreme to extreme as it were by these degrees of hardnes and softnes.

4.
Ampiblistroi-
des or *Retiformis*, Net-like
coate.

An anatomis
call *Axioma*.

The fifth and last coate is called *Arachnoides*, because it is of the consistence of a spidersweb. And wee may well resemble this coate, to that skin of an union which exceeds the other in clearnesse, whitenesse and thinnesse. This *Araneosa* or Cobweb-like coate encompasses the Christalline humor on the fore side, peradventure that so it might defend it, as the chiefe instrument of seeing, if the other humors should at any time bee hurt. It hath its originall from the excrementitious humidity of the Christalline humor, hardened into that coate by the coldnes of the adjacent parts; absolutely like the thin skin which encompasses the white of an Egge.

5
Arachnoides,
five *Araneosa*,
the Cobweb-
coate.

The 3 humors
of the Eye.

I
Aqueus, or
matery.

The first humor of the eye is called the *Aqueus* or waterish, from the similitude of water; it is seated betwene the transparent part of the Horny coate, the portion

2 Crystalline,
Crystalline.

A Philosophi-
call Axiome.

Gal. Cap. 5. lib.
10. de usu part.

In what place
Catarrhact
or fistulation
breeds.

3
Vitrens, seu
Albugineus,
that is Glassie,
or like the
white of an
Egge.

The veins of
the eye.

of the Chrystalline humor lying towards the apple of the eye, and that reflection of the Grapy coate which comes from the *Iris* to the circumference of the Chrystalline humor, that filling the empty space it may distend the *Cornea*, and so hinder the falling thereof upon the Chrystalline which would spoyle the sight; as also that by its moisture it might hinder the drying of the Chrystalline humor. Peradventure it is made of the whayish humor sweating out of the vessells of the coats, having their orifices for the most part in that place, where this waterish humor resides. The second humor and middle most in scituation is called the Chrystalline because it imitats Crystall in the brightnesse and colour; if so be that we may attribute any colour to it. For indeed it was fit that none of the three humors should be tintured with any colour, as those which should be the instruments of sight, lest they might beguile us in seeing as Red and greene spectacles doe; for that is true which wee have read written by the Philosopher; That the Subject or matter appointed for the reception of any forme should want all impression thereof. Hence Nature hath created a formelesse matter, the humors of the eyes without colours, waxe without any figure, the minde without any particular knowledge of any thing, that so they might be able to receive all manner of formes. The figure of the Crystalline humor is round, yet somewhat flatted on the foreside, but yet more flatted behinde that so the objects might be the better retained in that, as it were, plane figure, and that they might not fly backe as from a Globe, or round body, in which they could make but short stay; lest it might be easily moved from its place, by the force of any thing falling or hitting against it, because that body which is exactly round touches not a plane body but onely in a point or pricke. Halfe this humor swims in the Glassy humor, that so it may be nourished from it by transposition of matter; or rather (seeing it is encompassed on every side with the fist coate, that the matter cannot easily be sent from the one into the other) by the benefit of the vessells produced even unto it as well by the Net-like coate, as by the Grapye; but it is filled with a bright spirit on the forepart, which lyes next to the waterish humor, and the space of the Apple of the eye.

Of which thing this is an argument, that as long as a man remaines alive, wee see the eye every way full, and swollne, but lanke and wrinkled when he is dead; besides also one of the eyes being shut, the *Pupilla* of the other is dilated by the spirit compelled to fly thither. And also for the same cause the horny coate is wrinkled in very old men, and the *Pupilla* is straitned by the wrinkles subsiding into themselves, which is the cause that they see litle, or not at all; for by age and successe of time the humor is consumed by litle and litle, the implanted spirit vanishes away, and smaller quantitie of spirits flow from the braine, as from a fountaine which is also exhausted. The Horny coate at his originall, that is, in the parts next the *Iris*, seemeth to be very nigh the Crystalline Humor, because all the coates in that place mutually cohere as touching one another, but as it runnes further out to the *Pupilla*, so it is further distant from the Crystalline. Which you may easily perceive by Anatomically dissection, and the operation of touching or taking away a Catarrhact: for whereas a Catarrhact is seated betweene the horny coate, and Crystalline humor, the needle thrust in, is carried about upwards, downewards, and on every side through a large and free space, neither touching the horny coate nor Crystalline humor, by reason these bodies are severed by a good distance filled with spirit and a thin humor. The use of it is, that it may be like a looking-glasse to the facultie of seeing carried thither with the visive spirit.

The third and last humor is the *Vitrens* the glassie, or rather Albugineous humor, called so, because it is like molten glasse, or the white of an Egge. It is seated in the hind part of the Crystalline humor that so it may in some sort breake the violence of the spirit flowing from the braine into the Crystalline humour, no otherwise than the watry humor is placed on the foreside of the Crystalline to hinder the violence of the light and colours entering that way. This glassie humor is nourished by the net-like coate.

We have formerly spoken sufficiently of the nerves of the eye: Wherefore it remaines that we speake of the veins. Some of these are internall, carried thither with the

Table 3. figure 1. sheweth the Membranes and humors of the eye by lines drawne after the manner of a true eye.

Figure 2. sheweth the horny coate with a portion of the Opticke Nerue.

Figure 3. sheweth the same divided by a transuerse section.

Figure 4. sheweth the Vvea or Grapy coate with a portion of the Opticke Nerue.

Figure 5. The Grapy coate of a mans eye.

Figure 6. The Horny, Grapy and the Choroides.

Figure 7. The interior superficies of the Grapy coate.

(from the Eye.

Figure 8. The Posterior part of the horny coate together with the said Net coate separated

Figure 9. The coate of the vitreous or glassy humor called Hyaloides.

Figure 10. Three humors joynd together.

Figure 11. The forward part of the Chrystalline.

Figure 12. The Chrystalline humor covered yet with his coate.

Figure 14. The Chrystalline of a mans eye.

Figure 15. His Coate.

Fig. 16. The watery humor disposed upon the Chrystalline round about.

(glassy humor.

Fig. 17. The hairy processe beamingly sprinkled through the foreside of the coate of the

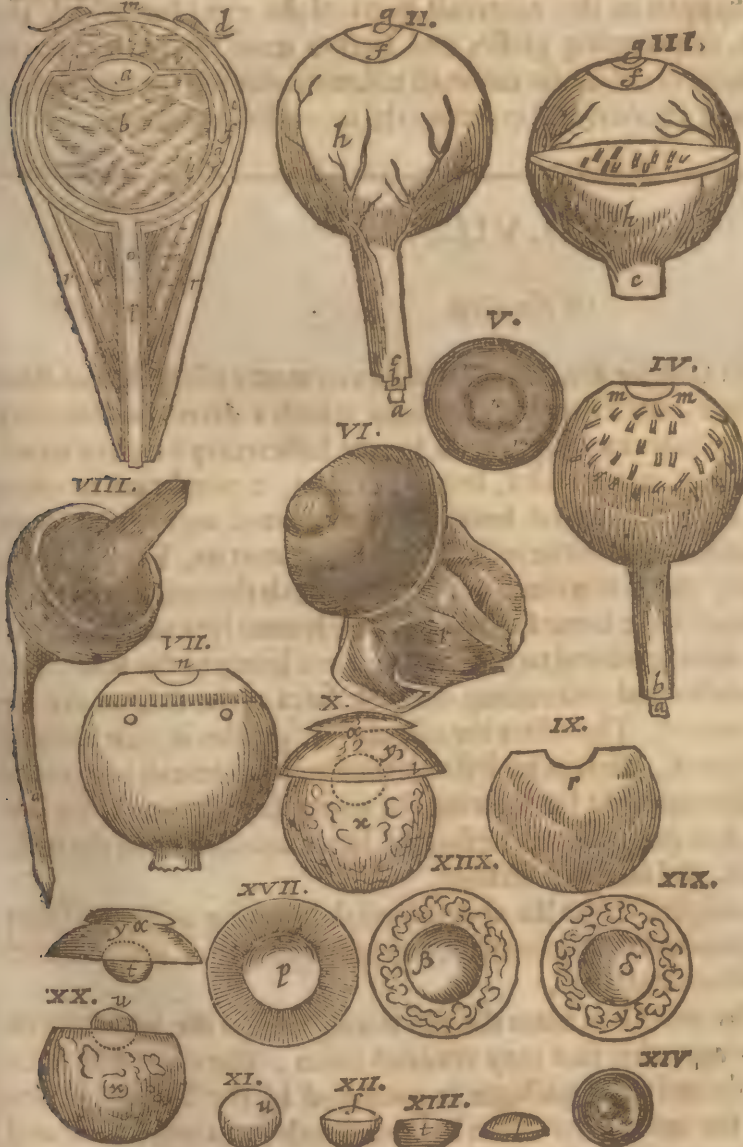
Fig. 18. The foreside of the glassy humor.

Fig. 19. The plase of the watery humor.

Fig. 20. The glassy humor containeing or comprehending the Chrystalline.

The figure of the eye.

FIG. I.



The explication of the first Figure by it selfe.

a, The Chrystalline humor.

b, The Glassie humor.

c, The watery humor.

d, The utmost coate called Adnata.

e, The darke part of the horny Tunicle which is not transparent.

f, The Grapy coate called Vvea.

g, The Net-like coate called Retiformis.

h, The coate of the glassy humor cald Hyaloides.

i, The coate of the Chrystalline.

kk, The hairy processe cald Processus ciliares.

l, The impressiō of the Grapy coate where it departeth from the thick coate.

m, The horny coate, a part of the thick coate.

nn, The fat betwixt the Muscles.

o, The optick Nerue.

p, The Dura meninx.

q, The Pia Mater or thin Meninx.

rr, The Muscles.

The explication of the other 19. figures together.

a 2, 4, 8, The Optick Nerue. b 2, 4, The thin Meninx cloathing the Nerue. c 2, 3, The thicke

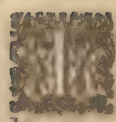
thick *Meninx* cloathing the nerve. *d* 8. the posterior part of the horny coate. *e* 8. The coate called *Retina* gathered together on an heape. *f* 2 3. The rainebow of the eye. *g* 2, 3. The lesser circle of the eye or the *pupilla*. *b* 2, 3. Vessels disperfed through the *Dura Meninx*. *i* 3, 6. The grapy coate, but *i*, in the 3. Fig. sheweth how the vessels doe joyne the hard membrane with the grapy coate. *k* 6. The horny or hard membrane turned over. *ll* 3, 4. Certaine fibres and strings of vessels, whereby the grapy coate is tyed to the horny. *mm* 4, 5. The impression of the grapy coate where it recedeth or departeth from the horny coate. *nn* 4, 5, 6, 7. The *pupilla* or apple of the eye. *oo* 7. The Ciliar or hairie processes. *p* 7. The beginning of the Grapie coate made of a thinne membrane dilated, but *p*, in the 17. figure sheweth the ciliar processes sprinkled through the fore part of the glassie humor. *r* 9. The bosome or depression of the glassie humor receiving the Christalline. *s* 12, 15. The breadth of the coate of the Christalline, *t* 12, 13, 14, 16. The posterior part of the Christalline humor which is sphericall or round. *u* 11, 14, 20. The fore-part of the same Christalline depressed *x* 10, 20. The amplitude of the glassie humor. *y* 10, 16, 19. The amplitude of the watry humor. *z* 19. The place where the glassie humor is distinguished from the watry by the interposition of the *Hylaides* or coate of the glassie humor. *a* 10, 16. The place where the grapie coat swimmeth in the watry humor. *b* 18. The cavities or depression of the glassie humor which remaineth when the Christalline is exempted or taken from it. *d* 19. the cavity or depression of the watry humor made by the same means.

What veines
may be opened
in what in-
flamations
of the eyes.

the coats of the vessels of the braine; other some externall stretched over the externall parts of the eye, as the Muscles, and coat *Adnata*, and by these veines inflammations and rednesse often happen in the externall parts of the eye: for which the *Vena pupis* must be opened, and cupping glasses and hernes must be applied to the nape of the necke and shoulders; as in the internall inflammations of the eye the cephalike veine must be opened to avert and evacuate the morbidicke humor.

CHAP. VII.

Of the Nose.

 The Nose is called in Greeke *Ris*, because the excrements of the Braine flow forth by this passage, thou maiest understand it hath a divers substance by composition. The quantity, figure and site are sufficiently knowne to all. But it is composed of the skinn and muscles, bones, gristles, a membrane or coate nerve, veines and arteries. The skin and bones both contained and containing, have formerly beene explained, as also the nerves, veines and arteries. The gristles of the Nose are sixe in number; the first is double separating both the nose-thrills in the top of the nose extended even to the bone *Ethmoides*. The second lyes under the former. The third and fourth are continued to the two outward bones of the nose. The fifth & sixth being very slender and descending on both sides of the nose, make the wings or moveable parts thereof. Therefore the use of these gristles is, that the nose moveable about the end thereof, should be lesse obnoxious to externall injuries, as fractures & bruses, and besides more fit for drawing the aire in & expelling it forth in breathing. For nature for this purpose hath bestowed foure muscles upon the nose, on each side two, one within, and another without.

The Gristles
of the nose.

The muscles
thereof.

The Externall taketh its originall from the cheek, and descending obliquely from thence and after some sort annexed to that which opens the upper lip, is terminated into the wing of the nose, which it dilates.

The internall going on the inner side from the jaw bone, ends at the beginning of the gristles that make the wings, that so it may contract them. The coate which inwardly invests the nose-thrills and their passages is produced by the five like bones from the *Cassa meninx*, as the inner coate of the Palate, throtle, weazon, Gullet and inner ventricle, that it is no mervaille, if the affects of such parts be quickly communicated with the braine. This same coate on each side receives a portion of a nerve from the

the third conjugation, through the hole which descends to the nose by the great corner of the eye.

The nose in all the parts thereof is of a cold and dry temper. The Action and profit thereof is to carry the aire and oft times smells to the mammillary processes, and from thence to the foure ventricles of the braine, for the reasons formerly shewed. But because the mammillary processes being the passages of the aire and smells are double, & for that one of these may be obstructed without the other, therefore nature hath also distinguished the passage of the nose with a gristly partitiō put between, that when the one is obstructed, they aire by the other may enter into the braine for the generation and preservation of the animall spirit. The two holes of the nose first ascend upwards; and then downewards into the mouth, by a crooked passage, lest the cold aire, or dust should be carryed into the lungs. But the nose was parted into two passages as we see, not onely for the fore mentioned cause, but also for helping the respiration and vindicating the smell from externall injuries, and lastly for the ornament of the face.

The temper,
action and use.

Why the nose
was parted in
two.

CHAP. VIII.

Of the muscles of the face.

II. 21

Now we must describe the muscles of the face pertaining as well to the lips as to the lower jaw. These are 18. in number, on each side nine, that is, foure of the lips, two of the upper, and as many of the lower. But there belong five to the lower jaw. The first of the upper lip being the longer, and narrower, arising from the yoke-bone descends by the corner of the mouth to the lower lip, that so it may bring it to the upper lip, and by that meanes shut the mouth. The other being shorter and broader, passing forth of the hollownes of the cheek, or upper jaw (by which a portion of the nerves of the third conjugation descends to these two muscles, and other parts of the face) ends in the upper part of the same upper lip, which it composes together with the fleshy pannicle and skin, and it opens it by turning up the exteriour fibers towards the nose, and shuts it by drawing the internall inwards towards the teeth.

There nume
ber.

The first of the lower lip being the longer and slenderer, entring out of that region which is between the externall perforation of the upper jaw (through which on the inner part of the same, a nerve passeth forth to the same muscles) and the muscle *Masseter*, (of which hereafter) then ascending upwards by the corner of the mouth, it ends in the upper lip, that so it may draw it to the lower.

The other broader and shorter begins at the lower part of the Chin and the hollownes thereof, and ends at the lower lip which it makes, opening it within and without by its internall and externall fibers, as we also said of its opposite. And that I may speake in a word, Nature hath framed three sorts of Muscles for the motion of the mouth, of which some open the mouth, others shut it, and othersome wrest it and draw it awry, but you must note that when the muscles of one kind joyntly performe their functions (as the 2 upper which we described in the first place, on each side one which draw the lower lip to the upper, and the muscles opposite to them) they make a right or straight motion; but when either of them moves severally, it moves obliquely, as when we draw our mouth aside. But these muscles are so fastened and fixed to the skin, that they cannot be seperated; so that it is no great matter whether you call it a musculous skin, or a skinny muscle (Which also takes place in the palmes of the hands and soles of the feet) but these muscles move the lips, the upper jaw being not moved at all.

CHAP. IX.

Of the Muscles of the lower Jaw.

Their number

The Temporal Muscle.

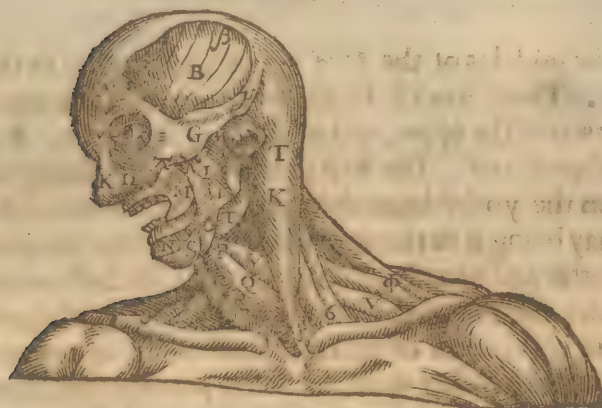
Why the wounds of the temporal Muscle are deadly.

WE have said these muscles are five in number, that is, foure vvhich shut it, and one which opens it, and these are alike on both sides. The first and greater of these foure muscles vvhich shut the Iawv is called *Crotophita* or Temporal muscle, it arises from the sides of the forehead and *Bregma* bones, and adhering to the same and the stony bone, it descends under the yoke bone, from vvhence it inserts it selfe to the proceffe of the lower Iawv vvhich the Greeks call *Corone*, that it may draw it directly to the upper, so to shut the mouth.

But you must note, that this muscle is tendinous even to his belly, and that it fills and makes both the temples. It is more subject to deadly wounds than the rest by reason of the multitude of nerves dispersed over the substance thereof, which because they are nere their originall, that is, the brain, they are in danger of suddaine death by a convulsion which usually follows the affects of this muscle; but also in like manner it causes a fever, the Phrenzy and Coma.

The Figure of the chiefe muscles of the Face.

FIG. II.



A. The muscle of the forehead and the right fibers thereof.

B. The Temporal muscle.

a.b.g. his semicircular originall.

D. The muscle of the upper lip.

G. The yoke-bone under which the temporal muscles passe.

I. The Masseter, or Grinding Muscle.

K. The upper gristle of the nose.

M. A muscle forming the cheekes.

N. The muscle of the lower lip.

O. A part of the Fifth muscle of the lower Jaw called Digastricus, that is, double bellied.

Q. R. The first muscle of the bone Hyoides growing unto the rough Artery.

S. The second muscle of the bone Hyoides under the Chin.

T. The third muscle of the bone Hyoides stretched to the Jaw.

T.K. the seventh muscle of the head and his insertion at T.

V.V. The two venters of the fourth muscle of the bone Hyoides.

φ. The place where the vessels passe which go to the head, and the nerves which are sent to the Arme.

The Masseter, or grinding muscle.

Therefore that it should be lesse subject or obvious to externall injuries, Nature hath, as it were, made it a retiring place in the bone, and fortified it with a wall of bone raised somewhat higher about it. The other Muscle almost equall to the former in bignes, being called the *Masseter*, or grinding muscle, makes the Cheeke, it descends from the lowest part of the greatest bone of the orbe (which bends it selfe as it were back, that it may make part of the yoke bone) and inserts it selfe into the lower Jaw, from the corner thereof to the end of the root of the proceffe *Corone*, that so it may draw this Jaw forward and backward, and move it like a hand-mill.

Wherefore nature hath composed it of two sorts of fibers, of the which some from the neeke (the cheek in that place under the eyes standing somewhat out like an aple arising from the concurrence of the greater bones of the orbe and upper jaw) descend obliquely to the corner and hinder part of the lower jaw, that it may move it forwards. Other some arise from the lower part of the same yoke-bone, and descending obliquely intersect the former fibers after the similitude of the letter X, and insert themselves

themselves into the same lower jaw at the roots of the *proccesse Corone*, that so they may draw it back. Truly by reason of these contrary motions it is likely this muscle was called the *Maffeter* or grinder.

The third, which is the round Muscle, arises from all the Gums of the upper jaw, and is inserted into all the gummies of the lower, investing the sides of all the mouth with the coate, with which it is covered on the inside, being otherwise covered on the outside with more fat than any other muscle. The action thereof is, not onely to draw the lower jaw to the upper, but also as with a Shovell to bring the meat dispersed over all the mouth under the teeth, no otherwise then the tongue drawes it in.

The round muscle.

The fourth being shorter and lesse than the rest arising from all the hollownes of the winged proccesse of the Wedge-bone, is inserted within into the broadest part of the lower jaw, that so in like manner it may draw the same to the upper. This is the muscle through whole occasion, we said this lower jaw is sometimes dislocated.

The lesser muscle of the lower jaw.

The fifth and last muscle of the lower jaw from the proccesse *styloides* of the stony bone, ascends to the forepart of the Chin, nere to the connexion of the two bones of this jaw, to draw this jaw downewards from the upper in opening the mouth. This muscle is slender and Tendinous in the midst, that so it might be the stronger, but it is fleshy at the ends. All these Muscles were made by the singular providence of nature and ingrafted into this part for the performance of many uses and actions, as biting asunder, chawing, grinding and severing the meat into small particles, which the tongue by a various and harmelesse motion puts under the teeth. Thus much I thought good to say of the parts of the face, as well containing as contained.

The fifth and last muscle.

The use of these mentioned muscles.

The Figure of the Muscles of the lower jaw.

FIG. III.



A. A hole in the forehead bone in the brimme of the seate of the eye, sending a small nerve of the third paire to the muscles of the fore-head and the upper eye-brow.

B. The Temporall muscle.

CHAP. X.

Of the Eares and Parotides or kernels of the Eares.



He Eares are the Organs of the Sense of hearing. They are composed of the skin, a little flesh, a gristle, veines, arteries and nerves. They may be bended or folded in without harme, because being gristlely, they easily yeild and give way; but they would not doe so, if they should be bony, but would rather break. That lap at which they hang pendants and lewels, is by the ancients called *Fibra*; but the upper part *pinna*. They have beene framed by the providence of nature into twining passages like a Snailles shell, which as they come neerer to the *foramen caecum*, or blind hole, are the more straitened, that so they might the better gather the aire into them, & conceive the differences of sounds and voices, and by little and little leade them to the membrane.

The nature and composition of the eares.

What the Fibra and pinna are.

The figure and the reason thereof.

This membrane which is indifferently hard hath growne up from the nerves of the fifth conjugation, which they call the auditory. But they were made thus into crooked windings, least the sounds rushing in too violently should hurt the sense of hearing. Yet for all this we oft find it troubled and hurt by the noise of thunder, Guns and Bels. Other wise also lest that the aire too sodainely entring in should by

For what use
the eare-waxe
serves.

its qualitys, as cold, cause some harme : and also that little creeping things and other extraneous bodys as fleas & the like, should be staied in these windings and turnings of the waies, the glutinous thicknes of the cholerick excrement or eare-waxe hereunto also conducing, which the braine purges and sends forth into this part, that is, the auditory passage framed into these intricate Mæanders.

*The Figure of the eares and bones
of the auditory passage.*



*Tab. 10. sheweth the eares and the
divers internall parts thereof.*

*Fig. 1. sheweth the whole external
eare, with a part of the Temple
bone.*

*Fig. 2. sheweth the left bone of the
Temple divided in the middest
by the instrument of hearing,
whereabout on either side there
are certaine passages heere par-
ticularly described.*

*Fig. 3, and 4. sheweth the three
little Bones.*

*Fig. 5. sheweth a portion of the
bone of the temples which is seen
neere the hole of Hearing divi-
ded through the middest, where-
by the Nerves, Bones and Mem-
branes may appeare as Vesalius
of them conceiveth.*

*Fig. 6. sheweth the Vessels, Mem-
branes, Bones and holes of the
Organ of hearing, as Platerus
hath described them.*

*Fig. 7, and 8. sheweth the little
bones of the hearing of a man
and of a Calf, both ioyned and
separated.*

*Fig. 9. sheweth the Muscle found
out by Aquapendens.*

*For the particular declaration
see D. Crookes Anatomic, pag.
577.*

For what use
the membrane
stretched un-
der the audito-
ry passage
serves.

But that we may understand how the hearing is made, we must know the structure of the organ or instrument hereof. The membrane which we formerly mentioned to consist of the auditory nerve, is stretched in the inside over the auditory passage like as the head of a Drum. For it is stretched and extended with the Aire, or auditory spirit implanted there, & shut up in the cavity of the mammillary processe and *foramen cecum*, that smitten upon by the touch of the externall aire entring in, it may receive the object, that is the sound, which is nothing else then a certaine quality arising from the aire beaten or moved by the collision, and conflict of one or more bodies.

What sound
is.

Such a collision is spread over the aire, as the water which by the gliding touch of a stone produces many circles and rings one as it were rising from another. So in rivelets running in a narrow channel, the water stricken and as it were, beaten back in its course against broken, craggy and steep rocks, wheels about into many turnings: this collision of the beaten aire flying back diverse waies from arched and hollow roofed

roofed places, as Dens, Cisterns, Wells, thick Woods and the like, yeilds and produces a double sound, and this reduplication is called an Echo. Wherefore the hearing is thus made by the aire, as a medium, but this aire is twofold, that is, externall and internall.

The cause of an echo.

The exterior is that which encompasses vs, but the interior is that which is shut up in the cavity of the mammillary proceffe and *foramen cecum*, which truly is not pure and sole aire, but tempered and mixed with the auditory spirit. Thence proceeds the noise or bearing of the Eares, when vapours are there mixed with the aire instead of spirits, whereby their motion or agitation is perturbed and confused. But neither doe these suffice for hearing, for nature for the more exact distinction of sounds hath also made the little bones, of which one is called the *Incus* or anvill, another the *Malleolus* or hammer, the third the *Stapes* or stirrop, because the shapethereof resembles a German stirrop. Also it may be called *Deltoides*, because it is made in the shape of the Greeke letter Δ.

The 3 bones of the auditory passage.

They are placed behind the membrane; wherefore the anvill and hammer moved by the force of the entrance of the externall aire, and beating thereof against that membrane, they more distinctly expresse the difference of sounds, as strings stretched within under the head of a Drum; as for example, these bones being more gently moved represent a low sound to the common sense & faculty of hearing, but being moved more vehemently and violently, they present a quick and great sound; to conclude, according to their diverse agitation, they produce diverse and different sounds.

Their use.

whence the difference of sounds.

The Glandules should follow the Eares in the order of Anatomy, as well those which are called the emunctories of the braine, that is, the *Parotides* (Which are placed as it were at the lower part of the eares) as these which lye under the lower Jaw, the muscles of the bone *Hyoides* & the tongue, in which the *Scrophule* and other such cold abscesses breed. It shall here suffice to set downe the use of all such like Glandules.

Therefore the *Parotides* are framed in that place by nature, to receive the virulent and malignant matter sent forth by the strength of the braine, by the veines and arteries spread over that place. The rest serve to strengthen the division of the vessels, to moisten the ligaments and membranes of the Jaw, lest they should be dried by their continuall motion. Their other conditions and uses are formerly handled in our first booke of Anatomy.

CHAP. XI.

Of the bone *Hyoides*, and the muscles thereof.

The Substance of the Bone *Hyoides* is the same with that of other bones, The figure thereof imitates the greek letter υ from whence it took the name, (as also the name *υψιλονειδης*; and from the letter λ it is in like sort called *λμβονειδης*; by some it is stiled *Os Gutturis* and *os Lingue*, that is, the Throat bone and Tongue bone. The composition thereof consists of many bones joyned into one by the interposition of gristles.

The reason of the name.

The composition.

This bone is bigger in beasts and composed of more bones, and that not only by the intercourse of gristles, but also of ligaments. It is seated with its basis (being gibbous on the forepart for constancy, and arched on the inside that it might receive and containe the root of the tongue) upon the upper part of that gristle of the throtle which is called *scutiformis* or Sheild-like, (for this seemes to prop it up by the strength of two proceffes rising at the basis thereof) and the root of the tongue. From this basis it sends forth two hornes to the sides of the tongue on each side one, which in men are tyed to the Appendix *styloides* by ligaments sent from it selfe. Contrary then it is in beasts, who have it of many bones united as we said, by the intercourse of ligaments even to the root of the *styloides*. Wherefore this bone hath connexion with the forementioned parts, and other hereafter to be mentioned. It hath the same temper as other bones have. The use of it is, to minister ligaments to certain muscles

The site.

The temper and use.

cles of the tongue, and insertion as well to the two foremost and upper muscles of the throat, as to its own, of which we will now treat.

The muscles
of the bone
Hyoides.

The muscles of the bone *Hyoides*, according to the opinion of some are eight, on each side four; of which there be two, one of which *Galen* refers to the common muscles of the *larynx* or throat; and the other to those which move the Shoulder-blade upwards. Howsoever it be, the first of the four before mentioned arises from the Appendix *Styloides*, and passing over the Nervous substance of the muscle opening the lower Jaw, is inserted into the horns of the bone *Hyoides*. This muscle is very thin, yet somewhat broad, the which in that respect may easily be cut, unless you have a care in separating the muscle which opens the lower Chap. The second ascends obliquely from the upper part of the shoulder-blade nere the production thereof called *Coracoides*, to the beginnings of the horns of the said bone *Hyoides*. This is round and nervous in the midst that so it might be the stronger, as that is which we formerly said opens the lower Jaw; and it is referred by *Galen* amongst those which move the shoulder-blade upwards. The third arises from the upper part of the *sternum*, and is inserted at the roote and basis of the bone *Hyoides*; yet *Galen* refers it to the common muscles of the *Larynx*; whose opinion takes place rather in beasts, than in man, seeing in man this muscle cannot be found either to proceed, or be inserted into the throat, as it is in beasts. The fourth and last descends within from the chin to the root of the bone *Hyoides*. The first of these muscles with its companion or partner moves the bone *Hyoides* upwards; the second downwards; The third backwards; and the fourth forwards. I would declare whence these muscles have their vessels, had I not abundantly satisfied that thing, when I treated of the distribution of the nerves, veines and arteries.

The action of
these muscles.

CHAP. XII.

Of the Tongue.

What kinde
of flesh the
tongue hath.



The quantity,

The figure.

Composure.

The nerves.

THE tongue is of a fleshy, rare, loose and soft substance; it enjoys flesh of a different kind from the rest of the flesh, as chiefly appears when you cut it from the first originall of the muscles thereof; which thing hath moved some, that they have made a fourth kind of flesh proper to the tongue and different from the rest, viz. the Fibrous, musculous, and that of the bowells. The quantity thereof is such that it may be contained in the mouth, and easily moved to each part thereof. The figure of it is triangular, which it rather expresses in the basis, which is at the root of the bone *Hyoides*, than in its point, or forepart, where from a triangle it becomes more dilated. It is composed of a membrane (which it hath from that which lines all the inside of the mouth) muscles 4. nerves two on each side, the one whereof is sent from the third conjugation, into the coat thereof; the other from the seventh is sent into the musculous substance even to the end thereof for motions sake; so that those sensifick nerves from the third conjugation onely give to judge of tastes, compose the coat, and touch or enter not the flesh. Besides it is composed of veines and arteries on each side one, which it receives from the externall Iugular and *Carotides*, running manifestly to the end thereof on the lower side, that so they might be easily opened in the diseases of the mouth and throat; they commonly terme these the *Vena nigra* or blacke veines.

The muscles
of the tongue.

The muscles of the tongue are absolutely ten, on each side five. The first narrow at the beginning, and broader at the end, descends into the upper side of the tongue from the Appendix *Styloides*, and together with its copartner drawes it upwards. The second hath its originall within from the lower jaw about the region of the Grinding teeth, and is inserted into the lower side of the tongue, the which with its partner drawes it downeward. The third proceeds from the inner part of the Chin and goes to the root of the tongue, that when need requires it may put it forth of the mouth. The fourth the greatest and broadest of them all, composed of

of all sorts of fibers, passes forth from the basis of the bone *Hyoides*, and ends at the lower part of the tongue, which with its companion plucks it backe into the mouth. The first & last most usually arises from the upper part of the hornes of the bone *Hyoides* and goes to the roots of the tongue betweene the two first, that it may move it to the sides of the mouth. The temper thereof, as of all other flesh, is hot and moist. The first action & commodity therof is, to be the organ of the sense of tasting, wherfore it was made fungous & spongy, that by reason of the rarity of it, it might more easily admit the taste conjoynd with the spittle, as a vehicle. Another to be an instrument to distinguish the voice by articulate speech, for which it was made movable into each part of the mouth. The third is to be a helpe to chew & swallow the meat. For which cause it is like a scoope or dish with which wee throw backe the corne into the mill, which hath scaped grinding. And because, when the tongue is dry, it is lesse nimble & quicke to performe its motions, as appears by those which can scarce speake by reason of thirst, or a burning feaver: therefore nature hath placed very spongy glandules at the roots therof, on each side one, which like sponges sucke and receive, both from the braine & other places a waterish and spittlesly humor, with which they humect and make more glib, not onely the tongue, but also the other parts of the mouth, as the throte and jawes; these glandules are called the *Tonsilla*, or Almonds of the throte.

The temper,
action, and
manifest use
of the tongue.

The use of the
glandules plac-
ed at the roots
of the tongue.

CHAP. XIII.

Of the Mouth.

THe mouth is that capacity which bounded with the cheekes & lips contains within its precincts the teeth, tongue, and the beginnings of the throtle and gullet. Therefore the use of the mouth is to containe the tongue, & serve it in the inter performance of its actions; & although many parts hereof have bin formerly handled, as the lips, teeth, lawes, tongue, almonds, & passages of the palate coming from the nose, yet it remaines, that we declare, what the palate, the *Gargareon*, or *Vvula* the *pharynx*, & *fauces* or Chops are. The palate (or as it is commonly called, the Roofe of the mouth) is nothing else but the upper part of the mouth bounded with the teeth gums & upper law. In which place the coate common to the whole mouth, is made rough with divers wrinkles, that the meats put up & down between the tongue & the Palate might be broken & chewed more easily by that inequality and roughnes. If any would finde the nerves, which descend into the palat from the fourth conjugation, let him separate that coat & cast it from the fore to the hind part of the mouth; for so he shal find them at the sides & hinde parts of the bones of the Palate, which incompass the palate, & at the beginning of the inner holes of the mouth, which descend from the nose, & region of the productions of the wedgbone called the Saddle. These holes or passages are open, that we may breathe the better when we sleep, & that when the nose is not well, the excrements which seeke their passage by it, may be easilier drawn away by the mouth. This same coate is woven with nervous fibers, that, like the tongue, it might judge of taste; these fibers compose a coat that hath a middle consistence betwixt soft & hard. For if it should have beene any harder, like a bone or gristle, it would have been without sense, but if softer hard, acride and sharpe meats would have hurt it.

What it is,
The use.

What the pal-
lat is.

The nerves
thereof.

Why the holes
of the palate
are open.

What kinde of
coate the pal-
lat hath.

CHAP. XIII.

Of the Gargareon, or Vvula.

BY the *Gargareon* we understand a fleshy & Spongy body, in shape like a pine apple, hanging directly down at the further end of the palate & basis of the bone *Ethmoides* where the two holes of the palate come from the nose, above the entrace of the throtle. This little body is scituate in this place, to breake the violence of the aire drawne in by breathing, & that by delay it might in some sort temper & mitigate it by the warmenesse of the mouth. Besides, that it might be as it were the *Pleatru*, or quill of the voice, so to diffuse the fuliginous vapour sent forth in breathing that it may be dispersed over al the mouth, that resounding from thence it may be articulate, & by the motion of the tongue distinguished & formed, into a certaine voice. Which use is not small, when we see by experience that such as have this particle cut away, or eaten or corrupted by any accident, have not onely their voyce vitiated and

What the *Garg-
areon*, or
Vvula is.

The site and
manifest use;
thereof.

The discom-
modities that
enuse the losse
of the *Vvula*.

depraved

What the
Pharinx and
fauces are.

depraved, but speake ill favouredly, and as they say, through the nose; and besides, in proesse of time they fall into a consumption by reason of the cold aire passing downe before it be qualified. This same particle, is also a meanes to hinder the dust from flying downe through the weazon into the Lungs. By the *Pharinx* and *fauces* is ment the inner & backe part of the mouth, set or placed before the entrance of the Throttle & Gullet; being so called, because that place is narrow & strait, that as it were by these straits, the aire drawn in by the mouth might be forced downe by the Throttle, and the meat into the Gullet.

CHAP. XV.

Of the *Larinx* or Throttle.

What is ment
by the *Larinx*.

The magni-
tude, figure
and composi-
ture.

The descripti-
on of the
3 gristles of
the *Larinx*.

Whence the
infinite variety
of voyces pro-
ceed.

The muscles
of the *Larinx*.
Their number

A notable
history.

Ifst we must shew what is ment by the *Larinx* or throttle, then prosequite the other cōditions of it after our accustomed maner. Therfore by the *Larinx* we understand nothing els in this place, than the head & extremity of the rough Artery, or weazon, which comes neerer to Gristlely substance, then to any other. The quantity therof is sufficiently large, yet divers according to the diversity of bodies. It resembles in shape the head of a Germane pipe. The composure of it consists of 18. muscles, on each side nine, which as they are like in quantity, so also in strength & action; of three gristles, veines, arteries and nerves, as we shewed, when we spoke of the distribution of the vessels; as also of a double coate, the one externall, the other internall, as we shewed when we spoke of the weazon. These three Gristles are joyned together by certaine Ligaments & muscles; the formost gristle, which also is the greater is called by the Greekes *βυσσινος*, in Latine commonly *Scutiformis*, that is sheild-like, because it resembles a sheild. The second being the hinder and middle in magnitude, wants a name, wherfore it is called the *innominata* or nameles gristle. The last & least which notwithstanding may be parted into two, so lyes upon the edges of the other, that it resembles the mouth of an oyle pot, or a pitcher, wherupon the Greekes call it *Arytenoides*. These gristles thus fitted amongst themselves utter a distinct voice, by the benifit of the *Epiglottis*, or After tongue, & also of the muscles opening & shutting, dilating & cōpressing them, whence proceed infinite varieties of voyces. For thus when they are opened and dilated they yeeld a heavy, or dull sound; when they are shut or drawn together, a quick, or sharpe sound, and to conclude, they make it infinite wayes different according to the infinite variety of the dilatation, or constriction thereof. Therfore because it was fit these gristles should be moveable, especially the *Arytenoides*, & *Thyroides*, nature hath put to them on each side 9 muscles, of which three are common and 6 proper. The first of the common lying hid under the third muscle of them that move the bone *Hyoides*, arises from the root of the same bone, & by an oblique descent inserts it selfe at the basis of the shield-like gristle, to dilate it upwards & downwards. The second ascends obliquely from the inner part of the *sternon* according to the length of the weazon (whence it is called *Bronchius*) to the bottom & sides of the same shield-like gristle, that it may open and dilate it with its wings. This muscle is seen from the first originall therof, even a great part of the way straitly to cohere with the third muscle of the bone *Hyoides*; therfore under each of the muscles, there is a glādulous body spread about the fore & upper part of the weazon, on that place where it applies it selfe to the throttle; this body although it resemble a fleshy substance, yet it is a glandule, which being pluckt away by a certaine Emperike taking upon him to cure the kings evil, caused a defect of voice on one side, because he pulled away the recurrent nerve lying upon that glandule as it goes to the throttle, as *Galen* reports, *Lib. de locis affectis*. The third & last arises from the part of the *Vertebra's* of the neck lying transversly upon the sides of the gullet, & ends at the wings & sides of the shield-like gristle, that it may tye it more straitly to the second Gristle. But these three are called cōmon muscles, because they take their original from some other place than the throttle that so they may be inserted into some part therof; for they are called the proper muscles which arise from the Throttle it self, which we have said to be 6. on each side. The first of which arising from the fore part of the second gristle, makes a circle under the basis of the shield-like gristle; whilest ascending obliquely to the basis therof, it is afterwards inserted in a part of it, so to strengthen and dilate it. The second in like manner arising

arising from the second gristle, from that place where it adheres to the first, it runnes obliquely crossing the first to the inner and forepart of the gristle *Thyroides* neere to the basis thereof, that it may joine it to the second. The third from the hinde basis of the second gristle ascends directly to the basis of the third gristle *Arytenoides*, that with the second muscle it may open & shut it. The fourth ascends from the sides of the second gristle, neere the originall of the second muscle, to the sides of the *Arytenoides*, that with the second muscle it may open and shut it. The fift arises from the inner middle of the sheild-gristle, and ends in the fore part of the *Arytenoides* at the insertion of the fourth muscle, that so it may presse down the said gristle.

The sixt and last ascends by the hinde basis of the *Arytenoides* to the fore basis of the same, to presse it downe. But you must note, that all such muscles, as arise from below upwards, receive branches from the recurrent, but especially those who open and shut the gristle *Arytenoides*. But the site, tempre connection, and use of the throtle may easily be knowne by that we have said before: Although it be a thing very full of difficulty to search out and demonstrate all the conditions of the organically parts, by reason of the diversitie of their composition. Wherefore hence forward concerning the substance, temper, and other circumstances of such parts as we shall omit; you may have recourse to those things which we have written in the Demonstration of the simple and simular parts, of which these organically are composed; as if any should aske of what temper the *Larinx* is, you shall answere, of a colde, dry, and hot, and moist, because it consists both of a gristlely and fleshy substance. Hee which reckons up all the parts of the mouth, must not omit that gristlely and membranous body which arises from the roots of the tongue, which that it might be more quicke for motion, that is, whereby it might be more easily erected and depressed (for those things which are more soft doe continually slide away, but those which are too hard cannot be bended) it was convenient it should be neither too hard nor too soft, that it might be erected whilest we breath, but depressed when wee swallow. It is a principall instrument of the voyce, for it cannot be well articulated unlesse the way were strait. Therefore it straitens that way, and the passage of the gristles of the throtle, but specially the *Arytenoides*; it is alwayes moist by a certaine native, and inbred humiditie; wherfore if it happen to be dried by a fever, or any other like accident the speach is taken away. It is bound on both sides by the common membrane of the mouth to the sides of the *Arytenoides* even to the backe part thereof, that so like a cover it may open and shut the orifice of the throtle, that none of the meat and drinke in swallowing may fall into the weazon, in such abundance as may hinder the egress and regresse of the aire. For we must not thinke that this body doth so closely shut the orifice of the throtle, but that some small quantitie of moisture alwayes runnes downe by the inner sides, as the walles thereof, to moisten the lungs; otherwise *Eclegma's* should be of no use in the diseases of the Chest. And because that this litle body is partaker of voluntarie motion, therefore according to the opinion of some there are foure muscles bestowed upon it, two which may open it and two that shut it, on each side one. The opening muscles descend from the roote of the bone *Hyoides*, and in their insertion growing into one they are terminated in the roote of this body, that is, the *Epiglottis* in the backe part thereof. The shutting muscles (in those creatures where they are found) arise on the inside betweene the coate & gristle thereof. Truly I could never observe and finde these foure muscles in a man, though I have diligently and earnestly sought for them, but I have alwayes observed them in beasts. Therefore some have boldly affirmed that this litle body in swallowing lyes not upon the orifice of the Throtle, unlesse when it is pressed downe by the heaviness of such things as are to be swallowed; but that, at all other times by reason of the continuall breathing it stands upright, the Throtle being open. There remaine as yet to be considered, two small bosomes, or cavities, or rather fissures which nature hath hollowed in the very throtle under the *Epiglottis*, on each side one, that if by chance any of the meat or drink should fall, or slip aside in the *Larinx*, it might be there stayed & retained. Beside that, the Aire too violently entring, should be in some sort broken by these clifts, or chinkes, no otherwise than the blood and spirit entring into the heart through the *Auricle* or Eares thereof.

Whence the muscles of the Throtle have their nerves.

The *Epiglottis* or *Apera* tongue,

Of petable things comes what alwayes falls upon the Lungs.

The muscles of the *Epiglottis*.

The use of the cavities or fissures of the Throtle.

CHAP. XVI.

Of the Necke and the parts thereof.



Ifst we will define what the neck is, then prosecute the parts thereof as well proper, as common, especially those of which we have not as yet treated. For it were superfluous to speake any more of the skin, the fleshy pannicle the veines, arteries, nerves, gullet, weazon & muscles ascending & descending to the parts into which they are inserted amongst the necke; wherefore you must not expect that we should say any thing of the neck, more than to describe the *Vertebra* or rack-bones, being the proper parts thereof, & the ligaments as well those proper to the neck, as those which it hath in common with the head; & lastly the muscles, as well those it hath in common with the head & chest, as those of its own. Therefore the neck is nothing els, then a part of the head, which is contained between the nower bone & the first *vertebra* of the back. First in the neck the *Vertebra's* must be considered, & we must shew what they have proper & peculiar, & what common amongst themselves, that we may the more easily shew the originall and insertion of the muscles growing out of them & ending in them. The neck consists of seven *Vertebra* or Rack-bones, in which you must consider their proper body; and then the holes by which the spinall marrow passes; thirdly the *Apophyses* or processes of the *Vertebra*; fourthly the holes through which the nerves are disseminated into other parts from the spinall marrow, & besides the perforations of the transverse productions by which the veines, & arteries which we call *Cervicales* ascend amongst the necke, & lastly the connexion of these same *vertebra* or Rack-bones. For the first, by the body of the *vertebra*, we understand the forepart thereof upon which the gullet lyes. For the hole, that is not alwaies the largest in those *vertebra* which are highest the head; but it is alwayes encompassed with the body of the *vertebra*, & besides with three sorts of processes, except in the first Rack-bone, that is right, transverse & oblique. By right we understand these extuberancies in the Racke-bones of the necke which are hollowed directly in the upper part of them & rise up crested on each side to susteine and receive the basis of the Rack-bone which is set upon it. By the oblique processes, wee understand the bunchings out by which these Rack-bones are mutually knit together by *Ginglymos*; these are seated between the right & transverse processes. By the transverse we understand the protuberations next the body, which divide the *Vertebra* or Rackbone in a straight line. These processes are perforated that they may give way to the before described veines & arteries, which entering the Spinall marrow by the holes of the nerves nourish the Racke-bones & parts belonging to them. Besides you must note that the perforations of the Rack-bones of the neck by which the nerves proceed from the spinall marrow to the outward parts, are under the transverse processe, that is growing or made by the upper & lower *vertebra*, contrary to all the other which are in the rest of the Rack-bones. For the connexion of the Rack-bones, you must know that all the *Vertebra* of the spine have six connexions, two in their own bodies, and 4 in their oblique processes. By the two first connexions they are so mutually articulated in their owne bodies that each are joyned with other both above and below. But by the 4 other, by their oblique ascendent & descendent processes, on each side 2, they are so mutually inarticulate that as the fourth Rack-bone of the neck by its oblique ascendent processes, is received of the descendent processes of the third Racke-bone; so it receives the oblique ascendent processes of the first, by its oblique descendents, for alwayes the oblique ascendents are received, and the descendents receive. Yet wee must except the first Rack-bone of the neck which is contained with 4 connexions by his lower oblique processes, & by its upper by which it receives the oblique processes both of the nower bone, & of the second Rack-bone. The second *Vertebra* or Rack-bone must also be excepted which is holden by 5 connexions, that is to say, foure by its oblique processes, & the fifth by its own body, by which it is knit to the body of the third *Vertebra*. But we must note, that whereas nature hath not given a Spine to the first Rack-bone, yet it hath given it a certaine bunch or extuberancy instead thereof; in like manner, seeing it makes no common passage with the second *Vertebra* for the passage forth of the nerve, it is perforated at the sides of its body, and it is made very thin on the fore side, as if it were without body, that it might receive the fore processe raised in the upper body of the second Racke-bone,

What the necke is.

What to be considered in the *vertebrae* of the necke.

Which be the right processes of the *vertebra*.

Which the oblique.

Which the transverse.

The connexions of the *vertebra* of the necke.

The processes called the tooth.

Racke-bone, which Hippocrates calles the tooth, to which the principall Ligament of the head is fastened, which descends within from the hinde part of the head under the *Apophyses clinoides* or processs of the wedge bone.

Table 20. Figure 1. Sheweth all the racke-bone of the backe knit together.
Figure 2. Sheweth the fore and upper face of the necke, &c. See D. Crooke, pag. 398.

FIG. I



From, A, to B, the seven
vertebres of the necke;
From C, to D, The twelve
vertebres of the chest.
From E, to F, The five
rack-bones of the
Loynes.
From G, to H, The Os
sacrum or Holy-bone
consisting commonly
of 6. vertebra.
From I, to K, The bone
Coccyx or the rump-
bone according to the
late writers.
LL, The bodies of the
vertebra.
M, The transverse pro-
cesses of the vertebra.
N, The descendent pro-
cesses.
OO, The ascendent pro-
cesses.
PP, The backward pro-
cesses.
QQ, The holes that are
in the sides of the ver-
tebra through which
the nerves are trans-
mitted.

RR, A gristly Ligament betwixt the vertebra.
A, 2, 3, 4, The hole whereout the marrow of the backe issueth.
B, 2, 3, The cavity which admitteth the root of the second rack-bone.
C, 3, 4, A cavity or Sinus in the same place crusted over with a gristle.
D, 2, A prominence in the outward region of this Sinus.
EF, 2, 3, The Sinus or cavity of the first racke-bone which admitteth the 2. heads of
the nowle-bone.
GG, 2, 3, 4, the transverse proceffe of the 1. Vertebra.
H, 1, The hole of this transverse proceffe.
I, 2, The Sinus, which together with the cavity of the nowle-bone marked with E,
maketh a common passage prepared for the nerves.
K, 3, 4, A rough place where the spine of the first racke is wanting.
LL, 4, Two cavities of the first racke receiving the 2. bunches of the second racke
marked with MN.
MN, 5, 6, The 2. bunches of the second racke which fall into the cavities of the first.
O, 7, The appendix or tooth of the second racke. P, 5, A knub of this appendix crusted
over with a gristle. Q, 6, The backside of the tooth. R, 6, the Sinus or cavity of the
same, about which a transverse Ligament is rowled containing the said tooth in the
cavity of the first racke. ST 6, Certaine cavities at the sides of the tooth whence the
roots issue of the fore-branch of the second paire of sinews. V, 5, the point of the
tooth. X, 3, An asperity or roughnesse where is a hole but not thrilled through. Y, 6, A
cavity

cavity of the second racke which together with the cavity marked with Z, maketh a hole, through which the nerves doe issue. Z, 4, the *Sinus* of the first racke. a, 5, 6, 7, the double spine of the second racke. b, 5, 6, 7, the transverse proceffe of the second rack. c, 7, the hole of the said transverse proceffe. d, 6, 7, the descending proceffe of the second rack whose cavity is marked with d, in the 6. figure. e, 6, 7, the place where the body of the second rack descendeth downward. f, gg, 8, the lower side of the body of the third rack at f, the two eminent parts of the same at gg. hi, 8, the ascending proceffes. l m, 8, the two descending proceffes. n o p q, 8, the transverse proceffes. r, 8, 9, the spine or backward proceffe. st, 8, the two toppes of the spine. u, 9, the descending proceffe of the third rack. x, 9, the ascending proceffe. y, the transverse proceffe of the third rack. z, 8, 9, the hole of this transverse proceffe. b, 9, the upper hollowed part of the body of the third rack. d, 9, the *Sinus* or cavity which maketh the lower part of a hole through which the conjugations of the nerves are led. e, 7, the upper part of the same hole.

By what articulation the head is bended backwards and forwards

And by this articulation the head is bended forewards and backwards, as it is moved to the sides by the articulation of the first Racke-bone with the second. That proceffe is bound by two Ligaments, the first of which being the greater and broader is externall, comprehending in the compasse thereof all the upper articulation, ascending from the Racke-bones to the head, or rather descending from the head to them, as any other Ligament going from one bone to another; The other is the stronger and also encompasses the articulation mixing its selfe with the gristle, which by its interposition binds together all the Racke-bones, the first excepted, as you may see in pulling asunder the Racke-bones of a Swine; and the whole Spine or Backe-bone is tyed together and composed throughout with such Ligaments.

The Vertebra of the Holy bone.

The Holy bone is composed of 4. *Vertebra* [or rather of five, or sixe, as in the figure following] Besides the Rumpe-bone, it receives, and holds fast the *Ossa Ilium*, or Hanch-bones, and is as a *Basis* to all the Racke-bones placed above it, whereby it comes to passe that the Racke-bones from the head to the Holy-bone grow still thicker, because that which supports ought to be bigger than that which is supported. There is a certaine moisture, tough and fatty, put between the Rack-bones, as also in other joints, to make them glib and slippery that so they may the better move. Whilest this motion is made, the Racke-bones part one from another.

The manifold uses of the backebone.

The commodities or uses of the Spine are said to be foure. The first is, that it is, as it were the seat and foundation of the composure and construction of the whole body, as the Carkasse is in a ship. The second, that it is a way or passage for the marrow. The third is, because it containes and preserves the same. The fourth is, that it serves for a wall or bulwarke to the entrailes which lye and rest upon it on the inside. And because we have fallen into mention of Ligaments, it will not be amisse to insert in this place, that which ought to be knowne of them. First therefore we will declare what a Ligament is, then explaine the divers acceptions thereof, and lastly prosecute their differences.

What a Ligament is.

Therefore a Ligament is nothing else than a simple part of mans body, next to a bone and Gristle the most terrestriall, and which most usually arises from the one or other of them either mediately or immediatly, and in the like manner ends in the one of them, or in a Muscle, or in some other part; whereby it comes to passe that a Ligament is without blood, dry, hard, and cold and without sense, like the parts from whence it arises, although it resemble a Nerve in whitenesse and consistence, but that it is somewhat harder.

Why it is without sense.

What parts may be called Ligaments in a generall signification.

A Ligament is taken either generally, or more particularly; in generall, for every part of the body, which ties one part to another, in which sense the skin may be called a Ligament, because it containes all the inner parts in one union. So the *Peritonaeum* comprehending all the naturall parts, and binding them to the backe-bone; so the membrane investing the Ribbs, (that is the *Pleura*) containing all the vitall parts; thus the membranes of the braine, the nerves, veines, arteryes, muscles, membranes, and lastly all such parts of the body, which bind together and containe other, may be called Ligaments, because they binde one part to another; as the nerves

annexe

annexe the whole body to the braine, the Arteries fasten it to the heart: and the veins to the liver. But to conclude, the name of a Ligament more particularly taken, signifies that part of the body, which we have described a little before.

The differences of Ligaments are many, for some are membranous and thin; others broad, other some thicke and round, some hard, some soft, some great, some little; some wholly gristlely, others of a middle consistence betweene a bone and a gristle, according to the nature of the motion of the parts, which they binde together in quicknesse, vehemency and slownesse. We will shew the other differences of Ligaments, as they shall present themselves in dissection.

The differences of Ligaments properly so called.

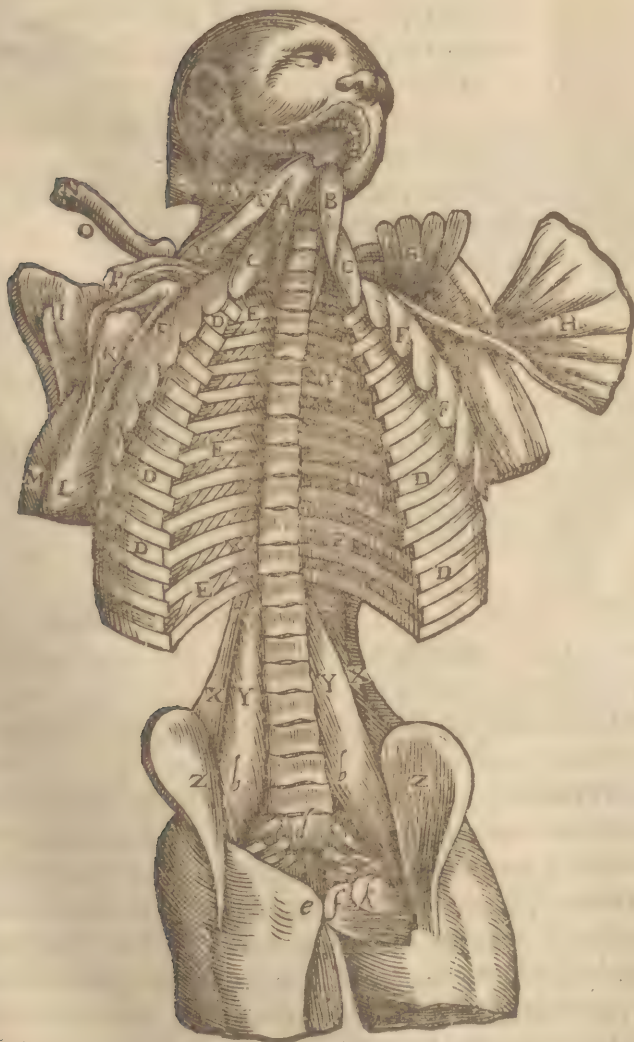
CHAP. XVII.

Of the Muscles of the Necke.



He Muscles of the necke as well proper as common, are in number twenty, or else twenty two, that is, ten, or eleven on each side; of which seven only move the head, or the first vertebra with the head; the other 3 or 4, the necke it self. Of the 7 which move the head, & with the head the first Vertebra, some extend & erect it, others bend and decline it, others move it obliquely, but all of them together in a successive motion move it circularly; and the like judgement may be of the Muscles of the Necke.

The fourth Figure of the Muscles. This Figure sheweth the cavities of the middle and lower bellies, the bowels being taken out, but most part of the bones and muscles remaining.



AB, The first muscle bending the necke called *Longus*.

CC, The second bender of the necke called *Scalenus*.

DDDD, The outward intercostall muscles.

EEEE, The inner intercostall muscles.

FFF, The second muscle of the chest called *serratus maior*.

G, The first muscle of the shoulder-blade called *serratus minor*, separated from his originall.

H, The first muscle of the arme called *Pectoralis*, separated from his originall.

I, The second muscle of the arme called *Deltoides*.

K, The bone of the arme without flesh.

L, The first muscle of the cubite called *Biceps*.

M, The second muscle of the cubit called *Brachialis*.

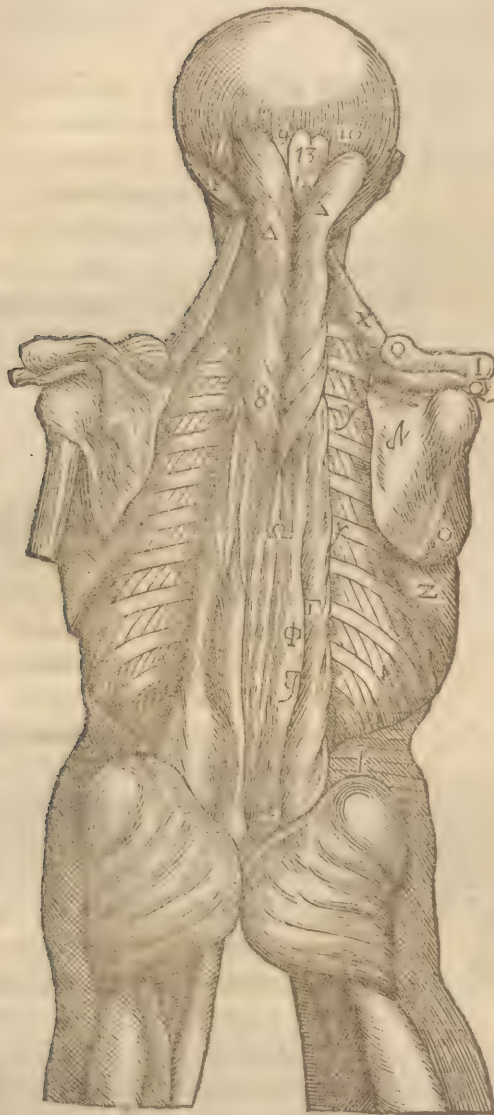
N, The clavicle or collar-bone bent backward.

O, The first muscle of the chest called *subclavius*.

P, The upper proceffe of the shoulder-blade. Q, The first muscle of the head called *obliquus*

obliquus inferior. R, The second muscle of the head called *Complexus*. S, The fourth muscle of the shoulder blade called *Levator*. TV, The two bellies of the fourth muscle of the bone *Hyeis*. XX, aa, The first muscle of the backe whose originall is at aa. TT, bb, cc, The first muscle of the thigh called *Psoa*, whose originall is at cc, and tendon at bb. ZZ, The seventh muscle of the thigh. d, the holy bone. ooo, the holes of the holy bone out of which the nerves doe issue. e, A portion of the first muscle of the thigh arising from the share-bone. f, the share-bone bared. k, the ninth muscle of the thigh or the first *circumactor*.

The fifth Figure of the muscles in which some muscles of the head, Chest, arme, and shoulder-blade are described.

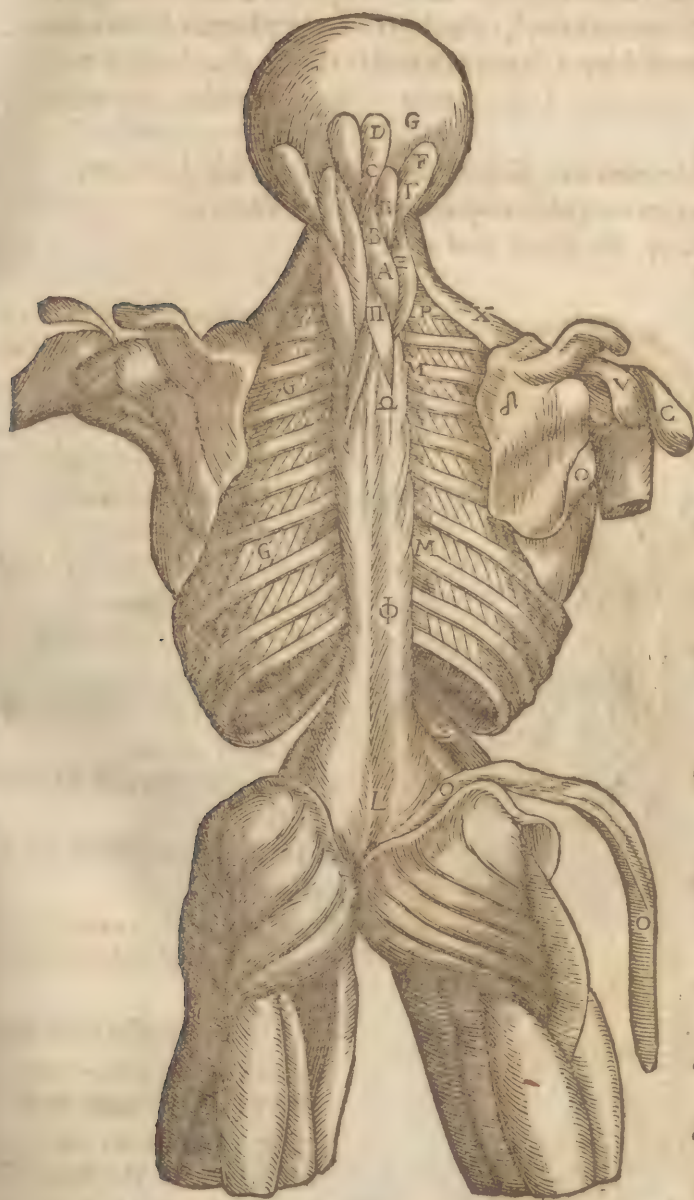


- 1, The proceſſe of the ſhoulder-blade, called the top of the ſhoulder.
- O, The fourth muscle of the arme or the greater round muscle, to which *Fallopian* his right muscle is adjoyned, which ſome call the leſſer round muscle.
- Q Q, The first muscle of the arme or the upper blade rider.
- X, The second muscle of the ſhoulder-blade or the *Levator* or heaver.
- Z, the second muscle of the chest or the greater *Saw* muscle.
- r, the fifth muscle of the chest or muscle called *Sacrolumbus*.
- αβ, His place wherein he cleaveth faſt to the longeſt muscle of the backe.
- γγ, the Tendons of the muscle obliquely inſerted into the ribs.
- ΔΔ, the first paire of the muscles of the head or the Splinters.
- Ch. 8. 9, their length whose beginning at 8 and inſertion at 9.
- 10, 11, the ſides of this muscle.
- 12, that diſtance where they depart one from the other.
- 13, the two muscles called *Complexi*, neare their inſertion.
- φ, the second muscle of the backe or the Longeſt muscle.
- Ω, the fourth muscle of the backe or the *Semi-spinatus*.
- ς, the ſhoulder-blade bare.
- P, A part of the tranſverſe muscle of the Abdomen.

But before I can come to the deſcription of their originall and inſertion, I muſt admoniſh thee, that the 2 Muscles of the ſhoulder-blade muſt firſt be taken away by diſſection; that is, the *Trapezius*, or Table-muscle, and the *Rhomboides*, or ſquare-muscle; whose originall and inſertion that we may the better demonſtrate, (or rather the action by which wee ſeek that originall and inſertion,) they muſt be pulled up, beginning at their inſertion, which is at the ſhoulder-blade (as ſhall be ſhewed in the proper place) turning them up towards their originall, that is, to the Spine. Beſides the leſſe *Rhomboides*, the hinder, and upper (called alſo the *Dentatus* or toothed-muscle) muſt be raiſed from its originall, which is at the three lower Rack-bones of the Necke and the firſt of the backe, and turned up to its inſertion

inflection, which is at three spaces of the lower ribs nigh to the hinde, and upper angle of the shoulder-blade, as shall be shewed in fit place hereafter. These muscles thus raised up, the 4 muscles which erect and extend the head must be taken away, and then those two which move it obliquely, and lastly one which bends, or de-

The sixth Figure of the muscles, shewing some of the muscles of the Head, Backe, Chest, Shoulder-blade and Arme.



AD, the second paire of the muscles of the head, or the two *Complexi*, the first part is at *AD*.

BC, the second part. *EF*, the third part rising up under *G* and inserted at *F*.

G, the fourth part of this muscle or the right muscle of the head according to *Fallopian*, which *Vesalius* made the 4. part of the 2.

GG, (Betwixt the ribs) the externall *Intercostall* muscles.

Z, the originall of the 2. muscle of the backe.

M, His tendons at the racke-bone of the necke.

The upper *O* the fourth muscle of the arme or the greater round muscle.

OO, the lower, the 6 muscle of the chest, or the *Sacro-lumbis* hanging from his originall.

Q, the sixt muscle of the arme or the upper *Bladerider* inverted.

V, the third ligament of the joynt of the arme:

X, the fourth muscle of the shoulder-blade or the *beaver*.

Z, the second muscle of the Chest or the greater *Saw-muscle*.

z, the 3. muscle of the necke called *Transversalis*. *π*, the 4. muscle of the necke called *Spinatus*. *Σ*, the first muscle of the backe or the *Square muscle*. *φ*, the 2. muscle of the backe or the *Longest*, whose originall is at *Z* and his tendons at the *Vertebra* at *M M*. *δ*, the fourth muscle of the backe called *Spinatus*. *δ*, the backe of the shoulder-blade flaid,

clines, for thus anatomically order requires. Yet if you thinke good, you may, not hurting the other, first of all cut away that which is called the *Mastoides*, which declines or bends the head. For these 4, which lift up and extend the head, the first from the figure of the *Splenie* is called the *Splenius*, it ascends from the 5. upper spines of the backe and the 4 lower of the necke, and is obliquely inserted at the backe part of the head and the mammillary processe, whence you may raise it towards its originall. The second by reason of its composure is called *Complexus*, this passing from the third, fourth and fifth transverse processe of the Backe and often from the first of the Necke, ascends directly to the backe part of the head

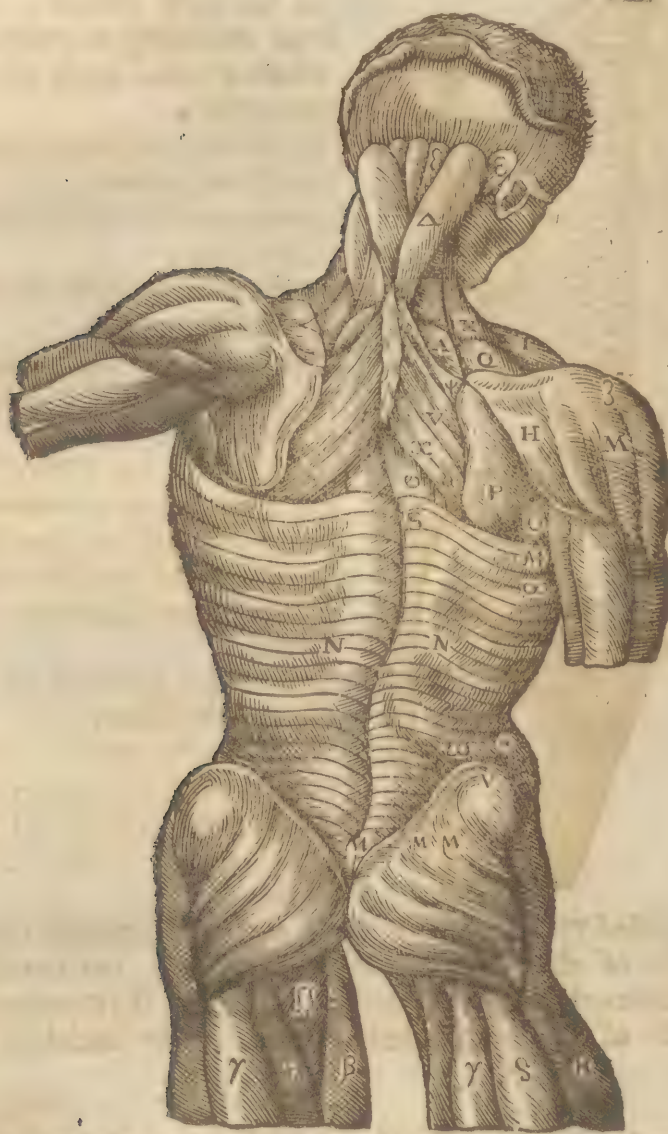
The Splenius.

The Complexus.

The Recti, or
2 right mus-
cles.

head, encompassing the lower and side part of the necke, you may easily take it up; if you begin at the spine, and so goe forwards to the transverse processes and mammillary processes of the nower bone. This *Complexus* may be divided into two or three muscles, but that with some difficulty, by reason of its folded texture. The third and fourth, which be two of the eight little muscles, being foure on each side, doe ascend somewhat obliquely, the first truly from the whole side of the second *Vertebra*. The second from the whole side of the proceffe of the first *Vertebra*, which it hath in stead of a spine; they ascend to the backe part of the head just against the spine; these two muscles by the consent of all Anatomists are called right, or direct muscles, only moving the head: these truly must not be pluckt from the places of their originall, nor insertion, but onely bound by a string put under them, that so they may be the more easily shewed. On each side follow two oblique muscles, one whereof

The seventh Figure of the muscles; shewing some muscles of the head and Chest, the Trapezius or Table-muscle being taken away: as also of the blade and arme.



A, The prominent part of the fourth muscle of the chest called *Serratus posterior superior*.

Δ, the first muscle of the head called *Splenius*.

EE, the insertion of the second muscle of the head called *Complexus*.

I, the collar bone bared.

M, the backpart of the second muscle of the arme called *Deltoides*.

ζH, His backward originall.

θ, His implantation into the arme.

NN, the fourth muscle of the arme called *Latissimus*.

σμ, His originall from the spines of the rack-bones and from the holy bone

ω, the connexion of this muscle with the hanch-bone, which is led in the inside from μ to ω.

ω, the place where it lieth upon the lower angle of the Basis of the shoulder-blade.

O, the 4. muscle of the

arme called *Rotundus maior*. e, some muscles of the backe doe here offer themselves. P, the fift muscle of the arme called *Suprascapularis Inferior*. Q, the sixt muscle of the arme called *Suprascapularis Superior*. S, the beginning of the third muscle of the arme called *Latissimus*. V, the third muscle of the blade called *Rhomboides*. φ X, His originall from the spines of the rackebones. φ ω, His insertion into the basis of the shoulder-blade. ζ, the fourth muscle of the blade called *Levator*. * A part of the oblique descendent muscle of the *Abdomen*.

onely moves the head: the other primarily the first *Vertebra*, but secondarily, and by accident the head it selfe. For the first, contrary to the opinion of some, it arises from the transverse proceſſe of the first rack-bone, and then is inserted, above the insertion of the first right muscle, the which in like manner you must lift up, by some thing put underneath it, but not separate it. The other entering forth of the spine of the second *Vertebra*, is inserted at the proceſſe of the first, contrary to the originall of the precedent, although some thinke otherwise. It will be convenient in like manner onely, to lift up this with a string, and not plucke him from his place, that so you may see how all these make a perfect triangle. The action of this muscle is contrary to the action of the precedent, as the contrariety of its originall and insertion shew:

The eight Figure of the muscles; especially of those of the Chest, Head, and Shoulder blade, the Trapezius, Latissimus, and Rhomboides, being taken away.



A, The fourth muscle of the chest, or the upper and hinder Saw-muscle.

B, the 5 muscle of the chest, or the lower and hinder Saw-muscle.

a, b, A membranous beginning of the muscle of the *Abdomen*, descending obliquely downe from the spine of the backe.

C, the first muscle extending the Cubit at *r*, his originall is from the necke of the arme, and from the lower basis of the blade at *d*.

E, the originall of the fourth muscle of the bone *hyois* from the blade.

GG, the outward intercostall muscles.

I, the Clavicle or collar-bone bared.

N, the upper, the second muscle of the arme called *Deltoides*, char.

4, 5, the beginning of this muscle.

N, the third muscle of the arme or the broad muscle separated.

O, the fourth muscle of the arme or the lower *Super-Scapularis* or bladerider.

1, 2, 3. Char. His originall at the

basis of the shoulder-blade at *1, 2*, and his insertion into the joynt of the arme at *3*. *Q*, the sixt muscle of the arme or the upper *Super-Scapularis*. *X*, the fourth muscle of the blade called *Levator* or the heaver. *Z*, the second muscle of the Chest or the greater Saw-muscle. *7, 7*, Char. the ribs. *r*, the sixt muscle of the chest, or the muscle called *Sacrolumbus*. *Λ*, the first muscle of the head or the splinter. *EE*, the second muscle of the head or the insertion of the muscles called *complexi*. *a*, the second muscle of the backe or the longest muscle. *α*, the fourth muscle of the backe called *Semispinatus*.

Wherefore

Which may be truly called the proper muscle of the necke.

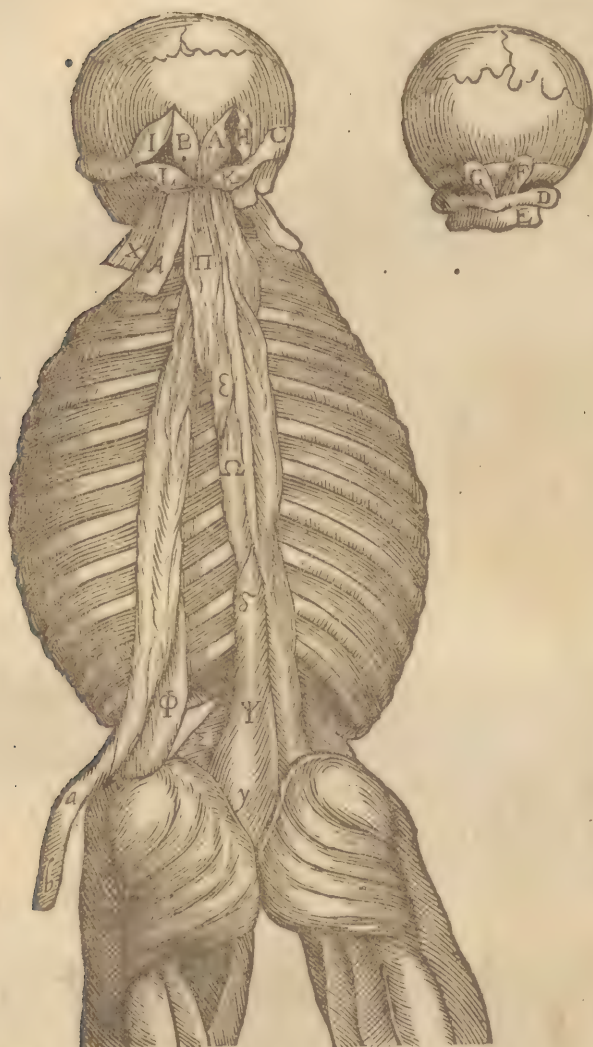
The two motions of the head,

Wherefore when the first oblique moves the head obliquely forwards, the second pulls it packe by the first *Vertebra*, this with his associate of the other side, may be truly termed the proper muscles of the neck, because they belong to no other part; whereas it is contrary in other muscles. But we must note, that the head (according to *Galens* opinion) hath two motions, one directly forwards and backwards, as appears in beckning it forwards, and casting it backwards; the other circular.

The first in *Galens* opinion is performed by the first *Vertebra* moved upon the second; the second by the head moved upon the first *Vertebra*; for which he is reproved by the latter Anatomists, who teach that the head cannot be turned round or circularly upon the first *Vertebra* without putting it out of joynt.

For the last, which bends the head, it ascends from the upper and side part of the *Sternon*; and the next part of the clavicle, obliquely to the *Apophysis*

The ninth Figure of the muscles, shewing the muscles of the Head and Necke.



AB, the third paire of the Muscles of the head called *Recti Maiores*.

C, the Mammillary proceffe.

D, the transverse proceffe of the first rackebone.

E, the proceffe of the 2 rackebone of the necke.

FG, the fourth paire of muscles of the head called *Recti Minores*.

HI, the fift paire of muscles of the head called *Obliqui Superiores*.

KL, the sixt paire of muscles of the head called *Obliqui Inferiores*.

X, the fourth paire of muscles of the shoulder-blade.

A, the second muscle of the necke called *Scalenus*, which *Falopius* maketh the eight muscle of the chest.

π, the fourth muscle of the necke called *Spinatus*.

Σ, the first muscle of the backe called *Quadratus*.

ϕ, the second muscle of the backe called *Longissimus*.

a, the sinus or bosome of this muscle; whereby it giveth way unto the third muscle of the backe, called *Sacer*.

b, His Originall.

ψ, the third muscle of the backe cal-

led *Sacer*. *γ*, His Originall. *δ*, His end. *ω*, the fourth muscle of the backe called *Semispinatus*. *ε*, His upper end under the fourth muscle of the necke.

Mastoides or mammillary proceffe of the hinde part of the head, whence it is called the *Mastoides*. You may divide this by reason of its manifold originall rather into two, than into three muscles. But it had beene better that the head might have beene moved every way, equally backwards and to the right and left sides; but thus it would often have beene strained to our great dammage and danger of life; neither could there have beene such facility of motion without a loosensse of the joynt. Therefore nature had rather bestow upon the head an harmelesse facultie of fewer motions, than one furnished with more variety, but with a great deale more uncertainty and danger. Wherefore it hath made this juncture not lax or loose, but stiffe and strong.

After

The *Mastoides*.

After the shewing of these muscles, we must come to three or foure of the necke, of which number two (which some reduce to one) extends, another bends, and the last moves side wayes, and all of them with a motion succeeding each other turne it about, as we said of the muscles of the head. The first of these which extend, taking its originall from the fixe transverse processes of the fixe upper racke-bones of the backe, or rather from the root of the oblique, ascends directly to the spine of the second *Vertebra* of the necke, and the oblique processe thereof; some call it the *Transversarius*; that is, the transverse-muscle. This, if you desire to take it away, it is best first to separate it from the spine, then to turne it upwards to the transverse processes; unlesse you had rather draw it a little from its partner and companion in that place where their originals are distinct, seeing it is the last and next to the bones.

The Trans-
versarius.

Marvell not, if you finde not this distinction of their originall, so plaine and manifest, for it is commonly obscure. For the muscle *Spinatus*, as it most commonly comes to passe, arising from the roots of the seven upper spines of the backe, and the last of the necke, is inserted into other spines of the necke, so that it might easily be confounded with the former by *Galen*. The third bends the necke, and arising within from the body of the five upper *Vertebra* of the backe (though with a very obscure originall, specially in leane bodies) it ascends under the gullet alongst the necke, even to the nowle-bone, into whose inner part it is obscurely inserted. Wherefore it is likely that it helps not onely to bend the necke, but also the head. This muscle is made of oblique fibers proceeding from the body of the *vertebra*, all the way it passes to the transverse processes of the other *Vertebra*. But it seemes with its copartner which is opposite to it, to make a certaine hollow path upon the bodies of the *Vertebra*, to the gullet, and it is called the long muscle. The fourth and last, which we said moves the necke to one side, is called *Sclenius* from the figure thereof; it ascends from the hinder and upper part of the first rib of the Chest, inserting its selfe into all the transverse processes of the necke by its fibers, which as it were for the same purpose, it hath sufficiently long, that it may fasten it selfe from the furthest or lowest processe of the necke into the first or highest thereof. The passage of the nerves through this to the arme makes this muscle seeme double or divided into two. For the veines and arteries pertaining to the necke, they have beene declared in the proper Chapters of the distributions of the vessels; it remaines that you note, all these muscles receive nerves from the *Vertebra* whence they arise.

The *Spinatus*.

The *Longus*.

The *Sclenius*.

CHAP. XVIII.

Of the Muscles of the Chest and Loynes.

WE must now speake of the Muscles both of the Chest which serve for respiration, as also of the Loynes. But first we must know that the hinder part of the Chest called the *Metaphrenum*, or backe, consists of twelve *Vertebra*, the loynes of five, all which differ not from the *Vertebra* of the necke, but that they are thicker in their bodies than these of the necke; neither are they lesser in holes, neither they have their transverse processes perforated, or parted in two, as the racke-bones of the necke have. Besides each of these racke bones alone by it self, on each side in the lower part thereof makes a hole, through which a nerve hath passage from the spinall marrow to the adjacent parts, when on the contrary in the *Vertebra* of the necke, such holes or passages are not made, but by meeting together of two of them.

In what the
Vertebra of the
necke and
loynes agree
and disagree.

Concerning the processes of the Rackbones of the Chest, whether transverse, right or oblique, they differ nothing from these of the necke (I meane even to the tenth) but that the transverse seeing they are not perforated, as we said before, do as it were sustaine the ribbes, being straitly bound to them with strong ligaments both proper and common; but after the tenth *Vertebra* of the backe, the two other of the backe, and all those of the loynes are different, not onely from those of the necke, but also from the tenth first of the backe, by reason of their oblique processes, because from

the eleventh (which is received, as well by that which is above it, as by that under it, for the strength of the whole backe, and the easier bending thereof without feare of fracture or dislocation) the above mentioned processes of the lower rack-bones which were wont to receive, are received; as on the contrary they receive which were wont to be received. They differ besides from all the forementioned, by reason of their spines, because from the eleventh they beginne by little and little to looke upwards, contrary to the former.

How the tenth Vertebra of the backe, may be said to be the middle of the spine.

But if any aske, how the tenth Vertebra of the backe may be termed the midst of the spine, being the whole spine consists of twentie foure Vertebra? He may know that this may be true, as thus; if the sixe bones of the holy-bone, and the fourth of the Rump (being more gristlely than bony) be numbred amongst the bones of the Spine; for then from the setting on of the head to the eleventh racke bone of the backe, are seaventeene in number, and so many from thence downewards.

The number of the muscles of the Chest.

But let us returne to the muscles of the Chest serving for respiration. First, you must know that these Muscles are fourescore and nine, that is, on each side forty foure, alike in strength, thickeesse, site, and action; and one besides in the midst which they call the *Diaphragma* or Midriff.

The muscles dilating the Chest.

Of these fortie foure, there are 22. which dilate the chest in drawing in the breath; that is, the *Subclavius*, the *Dentatus*, or *Serratus major* in the opinion of some, both the *Rhomboides*, or *Serrati possici*; the oblique ascendent of the lower belly, the eleaven *Intercostales*, and the sixe *Intercartilaginei externi*.

The muscles contracting the Chest. The *Subclavius* is the first of the muscles dilating the chest. *Serratus major*.

On the contrary, as many contract the breast in expiration; to wit, the *Sacrolumbus*, the oblique descendent, the Right and transverse of the lower belly, the inner Triangular, the sixe *Intercartilaginei*, and the eleaven inner *Intercostales*. Of these twentie two dilating the Chest, the first, from the site is called the *Subclavius*, for it descends obliquely from the inner and forepart of the *Clavicula* or Coller bone, into the gristle of the first ribbe, even to the *Sternum*, and dilates it. The second is the *Serratus major*, the greater Saw-muscle arising according to the opinion of some from the whole basis of the shoulder-blade on the inside, and it is transversely inserted into the nine upper ribbes, producing certaine toothed or saw-like processes running further to the bones of the rib, than to the spaces between them, or Intercostall muscles, whereupon it hath the name of the saw-muscle; yet some have referred this muscle to them of the shoulder-blade. The third descends from the three lower spines of the neck, and the first of the backe, by means of a membranous and most thinne ligament, into the three or foure upper ribbes, running further into their spaces or Intercostall muscles, than into the ribbes themselves, wherupon it is called *Serratus posterior*, & *superior*, that is, the hinder and upper saw-muscle. The fourth in like manner ascends by means of a membranous and thin ligament from the three upper spines of the loines, and the two last of the chest, or backe, into three or foure of the lower, or last of the bastard ribbes, sent forth further into them or their bones, than into the Intercostall muscles possessing the spaces betweene them, wherefore it is called *Serratus posterior* & *inferior*, the hinder and lower saw-muscle. Moreover these two last muscles have been called by a common name from their figure the *Rhomboides*, that is, the square muscles. The fift which we said was the ascendent of the *Epigrastrum*, hath already beene sufficiently described in his place. The eleaven *Intercostales externi*, or externall Intercostall muscles descend obliquely from the backe part of the lower side of the upper ribbe, into the forepart of the upper side of the ribbe lying next under it, after a quite contrary manner to the sixe *Intercartilaginei*, who having like originall and insertion amongst the gristles, as the Intercostall amongst the ribbes, descend obliquely from the forepart backwards. And thus much of the muscles dilating the Chest in inspiration.

Serratus posterior and *superior*.

The oblique ascendent of the lower belly.

The eleaven *Intercostales externi*.

6. *Intercartilaginei*.

The *Sacrolumbus*, the first of those which contract the chest.

But the first, of the other muscles, being as many in number, which contract the Chest in expiration, arising from the holy-bone, and the oblique processes of the loines, ascends (firmely and confusedly adhering with the *Musculus sacer*, or holy-muscle, which we shall describe hereafter) to the roots of the twelve ribbes, imparting in the ascent a small tendon to each of them, by which it drawes these ribbes towards the transverse processes; and by reason of its Originall it is called *Sacrolumbus*, that is, the Holy loine-muscle.

The

The second, third, and fourth, which we said were the oblique descendent, right, and transverse of the *Epigrastrum*, have been formerly described in their place.

But by the way you must note that these three muscles of the *Epigastrium* help expiration rather by accident, than of themselves, to wit, by driving backe the midriffe towards the lungs by the entrailles, which also they force upwards, by drawing the parts into which they are inserted towards their Originall. The fifth which we called the *Triangulus*, or Triangular, may be called the *Compressor* of the gristles, which proceeding from the inner sides of the *Sternon*, goes to all the gristles of the true ribbes; this is more apparent under the *Sternon* in beasts, than in men, though it be not very obscure in them neither. For the internall Intercoastall muscles, in my judgement, they arise from the lower sides of the upper ribbe, and descending obliquely from the fore part backwards, are inserted into the upper side of the ribbe next under it; so that they may follow the production of the fibres of the externall *Intercartilaginei*; as the fixe internall *Intercartilaginei* follow the site of the externall Intercoastall proceeding from behinde forwards; wherefore as well the Intercoastall, as the *Intercartilaginei*, every where intersect each other, after the similitude of the letter X. I know some have written that the internall muscles (whether intercoastall or *Intercartilaginei*) ascend from the upper sides of the lower ribbe forwards, or backwards.

But if this were true, it would follow that these muscles admitted their nerves in their taile and not in their head, seeing the nerve alwayes goes under the ribbe, and not above it.

The last muscle of the Chest, that is, the *Diaphragma* or Midriffe, is sufficiently described before; wherefore it remains wee describe the muscles of the Loines. These are fixe in number, on each side three, equall in thickness, strength and situation; one of these bends, and the other two extend the Loines; it is called by reason of the figure the *Triangulus*, or Triangular which bends the Loines, it ascends from a great part of the hinde side of the Hanch-bone into the transverse processes of the Loines, and the last of the Chest on the inside, for which cause it is made of fibres short, long, and indifferent, answering to the neareness or distance of the said processes. The first of the extenders is called the *Semispinatus*, because even to the middle of its body it takes the originall from the spines of the holy-bones and Loines; this with its oblique fibres ascends from all the said spines to the transverse processes as well of the Loines as Chest. The other is called *Sacer*, the Holy-muscle, because it takes its originall from the Holy-bone, or the sides thereof; it ascends with its oblique fibres to the spines of the Loines, and of the eleaven lower Rack-bones of the Chest.

The oblique
descendent,
the right and
transverse of
the *Epigastrium*.

*Triangulus
musculus.*

*Intercoastalis
internus.*

*Intercartilaginei
interni.*

Muscles al-
wayes receive
their nerves
in their heads.

The midriffe.

The muscles
of the loines,
They are
three partes
Triangulus.

Semispinatus.

Sacer.

CHAP. XIX.

Of the Muscles of the Shoulder-blade.

NOW we must describe the muscles of the extreme parts, and first of the Arme, taking our beginning from these of the Shoulder-blade. But first, that we may the better understand their description, we must observe the nature and condition of the shoulder-blade. Therefore the blade-bone on that part, which lies next unto the ribbs, is somewhat hollowed; wherefore on the other side it somewhat buncles out. It hath two ribbs, one above, another below: by the upper is ment nothing else than a border or right line, which looking towards the temples is extended from the exterior angle thereof under the collar bone, even to the Proesse *Coracoides* which this ribbe produces in the end thereof: By the lower, the underside which lies towards the lower belly and the short ribbs.

Besides in this shoulder-blade we observe the *basis*, head and spine. By the *basis* we understand the broader part of the shoulder-blade, which looks towards the

The descrip-
tion of the
blade-bone,
or shoulder-
blade,

The basis of
the blade.

The head of
the shoulder-
blade.

backe-bone. By the head we understand the narrower part thereof, in which it receives the head of the Arme in a cavity, indifferently hollow, which it produces both by it selfe, as also by certaine gristles, which there fastened encompassse that cavity. This kinde of cavity is called Glene.

The spine of
the blade.
The proecess
Acromion and
Coracoides.

This receives and contains the bone of the arme, by a certaine strong ligament encompassing & strengthening the joynt, which kind of ligament is common to all other joints; this ligament arises from the bottome of the cavity of the shoulder-blade, and circularly encompassse the whole joynt, fastening it selfe to the head of the arme; there are also other ligaments besides this, which encompassse & strengthen this articulation. By the spine is ment a proecess, which rising by little and little upon the gibbous part of the blade, from the *basis* thereof where it was low and deprest, becomes higher untill it ends in the *Acromion*, or upper part thereof. Nature hath made two productions in this bone (that is to say, the *Acromion* from the spine, and the *Coracoides* from the upper side) for the strengthening of the articulation of the arme and shoulder-blade, that is, lest the arme should be easily strained upward or forwards; besides, it is fastened to the clavicle, by the proecess *Acromion*.

The muscles
of the shoul-
der-blade.

The muscles which move the shoulder-blade are sixe in number, of which foure are proper, and two common. The first of the foure proper seated in the forepart, ascends from the bones of five or sixe of the upper ribbs, to the *Coracoides*, which it drawes forwards, and is called *Serratus minor*, that is, the Lesser saw-muscle; which that you may plainly shew, it is fit you pull the pectorall muscle from the collar-bone, almost to the middle of the *Sternon*. The other first opposite against it, is placed on the fore side, and drawes its originall from the three lower spines of the necke, and the three upper of the Chest, from whence it extends it selfe, and ends into all the gristly *basis* of the shoulder-blade, drawing it backwards; it is called the *Rhomboides*. The third from its action, is called the *Levator*, or the heaver, or lifter up, seated in the upper part, it descends from the transverse proecesses of the foure first *Vertebra* of the necke into the upper angle and spine of the blade. The fourth called *Trapezius*, or the Table-muscle, is seated in the backe part, and is membranous at the originall, but presently becoms fleshy: it arises from almost all the backe-part of the head, from all the spines of the necke, and the eight upper *Vertebra* of the chest, and then is inserted by his nervous part, almost into the whole *basis* of the blade, extending it selfe above the muscles thereof, even to the midst of its spine, where being fleshy it is inserted even to the *Acromion*, the upper part of the clavicle, and in some sort to the upper ribbe. This muscle hath a threefold action, by reason of its triple originall. The first is to draw the shoulder-blade towards its originall, that is, to the nowle, and spine of the necke; the other is to draw it towards the backe, because of the contraction of the middle or transverse fibers which leade it directly thither; and the other is to draw it downwards by reason of the originall it hath from the fifth, sixth, seventh, and eight spine of the *Vertebra* of the Chest.

*Serratus mi-
nor*.

Rhomboides.
Levator.

Trapezius.

But we must note that these diverse actions are not performed by this muscle, by the assistance of one onely nerve, but by more, which come into it by the spinall marrow, by the holes of the *Vertebra*, as well of the necke as the chest, from whence it takes the originall. For the two other which are the common muscles of the blade, and arme, or shoulder; we will describe them with the muscles of the shoulder or arme: for one of these which is called the *Latissimus*, that is, the broadest, ascends from the holy-bone to the shoulder-blade and arme.

Latissimus.

Pectoralis.

The other named the *Pectoralis* comes from the *Sternon* and collar-bone to the shoulder-blade and arme.

CHAP. XX.

The Description of the Hand taken in Generall.



NOW it befits us to to describe in order the muscles of the arme; but first we must know, what it is that we call the arme. But seeing that cannot fitly be understood, unlesse 1. we know what the hand is, seeing that the arme is a part of the hand; therefore first we must define what a hand is, and

and then divide it into its parts. Therefore the hand is taken two manner of wayes, that is, generally and specially.

The hand generally taken, signifies all that which is contained from the joyning of the arme to the shoulder-blade, even to the ends of the fingers. But in particular it signifies onely that which is comprehended from the furthest bones of the cubit, or the beginning of the wrest, to the very fingers ends.

What is meant
by the hand
in generall.

Therefore the hand in generall is an instrument of instruments made for to take up and hold any thing. It is composed of three great parts, that is, of the Arme, Cubite, and Hand, vulgarly, and properly so called; but the hand taken thus in particular is againe divided in three other parts, the *Carpus* or *Brachiale*, the *Wrest*, the *Metacarpium*, or *Postbrachiale*, the after wrest, and the fingers; all these parts (seeing each of them are not only organicall parts, but also parts of organicall parts) are composed of all, or certainly of the most of the simular parts, that is, of both the skinner, the fleshy pannicle, the fat vaines, arteries, nerves, muscles or flesh, coats both common and proper, bones, gristles and ligaments, all which we will describe in their order.

But first I thinke good to admonish you of the differences of the hand taken from the site thereof; and these differences are fixe in number, the fore, the hinde, the internall, the externall, the upper and lower side or part thereof.

The differences
of the
hand from the
site thereof.

By the fore we meane that part which looks directly from the thumbe to the shoulder: by the hinde, we understand the part opposite to it, which from the little finger looks towards the basis of the shoulder-blade. By the inside we signifie that part which lies next to the sides of the body, when the hand retaines its naturall site; by the outside, the part opposite to it. The upper and lower side you may know by the very naming thereof.

The hand properly so called is divided into five fingers, that so it may hold and take up bodies of all figures, as round, triangular, square and the like, and gather up the least bodies with the fingers ends, as needles, pins, and such like.

Why the hand
is divided into
so many finger
s.

Nature hath bestowed two hands upon us, that so they may helpe each other, each moving to each side. But for the taking up and holding of small bodies it was fit, that the fingers of their owne nature soft, should be armed with nailes, that consisting of soft flesh and an hard naile, they might serve for all actions; for the naile is a stay to the soft flesh, which otherwise would turne away in meeting with an hard body; the use of the nailes is to scratch, shave, and pull off the skinner, to rend, pinch, and plucke asunder small bodies. They have not bony hardnesse, that so they might not breake, but bend.

Why the
nailes are ad-
ded to the soft
flesh of the
fingers.

Yet other creatures have hard nailes, to serve them in stead of weapons. Their figure is round, because such a figure is lesse obnoxious to externall injuries; and by reason they are subject to wearing, they grow continually.

Why the nailes
grow continu-
ally.

Nature hath placed flesh on the inner and side part of the fingers, so to presse more straitly, the things they once take hold of, so that by holding them close together, we can hold water that it may not runne out. The length of the fingers is unequal, that when they are opened and stretched forth, they make as it were a circular figure; for so it comes to passe, that the hand can hold all bodies, but especially round.

It remaines that we prosecute the distribution of the veines, arteries, and sinewes, which runne over all the parts of the hand taken in generall and particular, whereby wee may more commodiously hereafter handle all the proper parts thereof.

CHAP. XXI.

*The Distribution of the Subclavian veine, and first
of the Cephalicæ, or Humeraria.*The Cephalicæ
veine.

Two large veines descend from the Subclavian, the one from the lower side, the other from the higher. Yet sometimes, and most usually, both these proceede from the same common orifice, as in men of a low stature in the arme. The one of these is called the *Axillaris*, the other the *Humeraria*, or *Cephalicæ*; therefore this Cephalicæ passing forth of the Subclavian runnes superficially along the foreside betweene the muscle *Deltoides*, and the Tendon of the pectorall muscle, and descends in the midst betweene the common coate of the muscles and the fleshy pannicle, even to the bending of the cubite, where in leane bodies it is plainly to be scene, whereas in fat bodies it is hardly to be perceived, being as it were buried in abundance of fat. This veine having in its descent, sent forth some small branches, both to the skinn, as also to certaine muscles over which it runs, is devided into two, a little above the outward protuberation of the arme. One of the branches into which it is devided descending obliquely to the fore part of the cubite, a little below the bending of the cubite, it meets, and is united with the like branch in the same place, as shall be showne hereafter.

The median
veine.


How by opening the median veine, you may draw more or lesse blood from the head or liver.

That which arises from this concurrence, is called the median veine, because it arises from two branches, and is seated betweene them. They usually open this median veine in the diseases of the head and liver, which require Phlebotomy; but if it shall not be sufficiently manifest, when you judge it must be opened, for a generall evacuation of the whole body; you may cut one of these branches, by whose concurrence it is made, which you shall think the fitter; and because each branch drawes from the next parts, according to the straightnesse of the fibers, rather than from the opposite side; if you would evacuate the head, and liver equally, by opening either of these branches; it is convenient that opening that branch (for example) which comes from the Cephalicæ, you presently lay your thumbe upon it, untill you suppose, you have drawne a just quantity of blood from the liver, by the *Basilica*, or liver veine; which done, you may take off your thumbe, and suffer the blood to follow freely, by the open branch of the Cephalicæ, untill you have drawne as much blood as you shall judge requisite; otherwise you will draw it but from one part, to wit, the head. So you shall evacuate it onely from the liver, if you open the branch which comes from the *Basilica*, and concurs to the generation of the median.

Moreover, when there is neede to open the *Basilica*, and it shall be no where conspicuous, the Cephalicæ or median being easie to be discerned at the same time, you may in stead thereof open the median, or if it be not to be found, the Cephalicæ, pressing but the trunk thereof with your thumbe, as we said before, lest the head should be evacuated in stead of the liver. You may doe the same in the *Basilica*, if when there shall be necessitie to open the Cephalicæ, it shall not appeare. Most of those which at this day open a veine, in stead of the median, open that branch of the *Basilica* which ascends, together with the Cephalicæ to make the median. But you must understand that the median descends betweene the two bones of the cubit, even to the end thereof, and then devided into many branches, it is at length spent on the backe of the hand behinde the thumbe, the fore and middle fingers, or the afterwrest. Sometimes it runs backe into the following branch, and then at the wrest it departs from it, to be bestowed upon the forementioned parts. The other branch of the Cephalicæ, which we may call the fore and outward Cephalicæ, descending directly downe to the midst of the wand, thence wanders overthwart into the hinde part of the arme, where encreased with a branch from the *Basilica*, it is distributed over all the backe of the hand, which with the median it nourishes. But the branches of these veines doe so run through the forenamed parts, that by the way, they yeeld them necessary provision.

CHAP. XXII.

The Description of the Axillary veine.

 He Axillary arising at the insertion of the pectorall muscle, or a little higher, after it hath produced the two *Thoracica* it is divided under the tendon of that muscle into two faire branches, that is to say, into the inner deepe Axillary, and the skinne or outward axillary. The deepe or inner having still for his companion in his descent, the axillary artery, and the nerves of the third conjugation, after it hath produced the small externall musculous of the arme, it goes into the bending of the elbow, where running somewhat deepe with the artery and nerve into the muscles of the cubite, it is divided into three other branches, of which one descending with the wand, slides under the ring, into the inner side of the hand, and hath bestowed two small branches on the thumb, two others on the fore, and one upon the middle finger, so that all of them ascend by the sides of these fingers, the other descending with the artery, as the former alongst the cubite, sends branches to the rest of the fingers, like as the former. The third goes on the fore side betweene the two bones even to the wrist, and the square muscle.

The axillary
is divided into
to

The deepe
axillary, and
outward axil-
lary.

But you must note that the veines of which we now treat, doe not onely make these divisions mentioned by us, but infinite others besides, as well in the parts which they goe to, as also in the inner muscles of the hand which they nourish.

And thus much of the internall and deepe axillary veine. For the externall or skin Axillary (which first appeares under the skinne, especially in leane bodies, a little above the inward production of the arme) it is divided in that place into two branches, the one whereof descending to the bending of the arme meets, and is united with the Cephalike branch, sooner or later, that so it may produce the median, as we formerly mentioned.


The other branch (having sent forth many shoots of a different length and thickeffe, as well into the skinne, as into the other neighbouring parts, descending alongst the lower side of the bone of the cubite, properly so called, is at length spent upon the fore and outward Cephalicke branch, which we said descended alongst the wand; and thus united, they runne over all the hand, where in the right hand, betweene the middle and fore finger, they make the *Salvatella*; but in the left, in the same place, they produce the *Splenitica*.

The *Salvatella*
and *Splenitica*

But alwayes remember, (if in dissection you finde any thing otherwise than we have delivered it) that the distribution of the vessels is so various (especially in the hands) that there can no certaine rule be delivered thereof.

CHAP. XXIII.

The Distribution of the Axillary Artery.

 He Axillary artery from the first originall, which is presently after the two *Thoracica*, descending betweene the muscle called *Biceps*, or the two headed muscle, and the *Brachieus*, with the deepe axillary veine, distributes a large branch amongst the outward muscles of the arme, which extend the cubite, and is spent in the externall muscles of the same, which arise without, from the productions of the arme.

And

An Axiom
call Axioms.

And this is called the *Ramus Musculus*, or Musculous branch, as also the veine that accompanyes this Arterye. Then this Arterye when it comes to the bending of the cubite, thrusting it selfe into the muscles bending the fingers, communicates certaine branches to the parts pertaining to the dearticulation of the cubit with the shoulder, and other parts there situate, as it did in the upper parts, by which it descended hither. Verily it may be a generall rule; that every vessell sends or bestowes certaine portions thereof by the way to all the parts by which it passes. But if you should aske, why I have not prosecuted these productions, I would answer, I never intended, to handle other than large and faire branches of vessels, by rash incision of which, there may happen danger of death or a disease. For it would be both an infinit and needles busines to handle all the small divarications of the veines, arteryes and nerves. Therefore this Artery funke into these muscles, when it comes almost to the midst of the Cubit, presently or a little after it is divided into two large branches, the one of which alongst the wand, & the other alongst the Cubite is carryed into the hand on the inside under the Ring. For both these branches are distributed and spent upon the hand after the same manner as the branches of the internall Axillary veine, that is, having sent by the way some little shoots into the parts by which they passe, at the length the branch which descends by the Wand of the remainder therof, bestowes two sprigs upon the Thumbe, on each side one, & two in like manner on the fore finger, and one on the middle; the other which runs alongst the Ell, performs the like office to the litle and the middle or ring finger, as you may see by dissection.

CHAP. XXIII.

Of the Nerves of the Necke, Backe, and Arme.

The 7 paire of
nerves of the
necke.

The first
paire.



Now we should handle the sinewes of the Arme, but because these proceed from the Nerves of the Necke and Backe, I thinke it fit therefore to speake something of them in the first place.

Therefore from the Necke there proceed seven paire of Nerves, the first of which proceeds from the nowle bone, and the first *Vertebra* of the necke; as also the first paire of the Backe from the last *Vertebra* of the Necke and the first of the Chest. But all these Nerves are divided into two or more branches of the first paire (that is to say, on each side) goe, the one to the small right muscle, ascending from the first racke-bone of the necke to the nowle bone, the other to the long muscle on the foreside of the necke.

The second
paire.

The branches of the second paire are distributed, some with a portion which they receive from the third paire over all the skin of the head; the two others go as well to the muscles, which are from the second *Vertebra* to the backe part of the head, and from the same to the first *Vertebra*, as also to the long muscle before mentioned.

The third
paire.

One of the third paire of Sinewes is communicated to the head, as we said before, but others to the Muscles which extend, or erect the head and the Necke; there is also one of these distributed into the neighbouring side muscle and part of the long.

The fourth
paire.

The nerves of the fourth paire go, one to the muscles aswel of the neck as the head, & to the broad muscle; the other after it hath sent some portiō therof into the long muscle & the side muscles of the necke, it descends with a portion of the fift and sixt paire

The fift paire.

to the Midriffe. One of the branches of the fift paire is bestowed on the hinde muscles of the necke and head, the other upon the longe muscle and Midriffe; the third is communicated to the *Levatores*, or Heaving muscles of the Arme and shoulder.

The sixt paire

One of the Nerves of the sixt paire goes to the hinde muscles of the Necke and head, another to the Midriffe, the third with a portion of the seventh paire of the necke, and of the first and second of the Chest goe to the Armes and heaving muscles of the shoulder-blade.

The seventh
paire.

One of the branches of the seventh paire runs to the broad muscle and to the neighbouring muscles both of the necke and head; another encreased with a portion of the fift and sixt paire of the necke, and a third joyned to the second and third paire of

of

of the Chest descending into the Arme goe to the hand.

But you must note that the Muscles which take their originall from many *Vertebrae*, whether from above downwards, or from below upwards, admit Nerves not onely from the *Vertebrae*, from whence they take their originall, but also from them which they come neere in their descent, or ascent.

There passe twelue conjugations of Nerves from the Rack-bones of the Chest.

The 12. paire
of Nerves of
the Chest.
The first paire

The first entring forth from betweene the last Racke-bone of the necke and the first of the Chest, is divided (that is, on each side, each Nerve from his side) into two or more portions, as also all the rest. Therefore the branches of this first conjugation goe some of them to the Armes, as we said before, others to the muscles as well these of the Chest, as others arising there, or running that way.

The branches of the second conjugation are distributed to the same parts, that these of the first were.

The second
paire.

But the branches of all the other conjugations even to the twelfth, are communicated, some to the intercostall muscles running within under the true ribs even to the *Sternum*, and under the bastard ribs even to the right and long muscles; and the Costall Nerves of the sixt conjugation are augmented by meeting these intercostall branches by the way as they descend by the roots of the Ribs. Other particles of the said Nerves are communicated to the muscles as well of the Chest, as spine, as the same Muscles passe forth, or runne alongst by the *Vertebrae*, from whence these nerves have either their originall, or passage forth.

The other
paires.

Having thus therefore shewed the originall of the Sinewes of the Arme, it remains that we shew their number and distribution.

The Nerves
which are
carried to the
Armes.

Their number is five or sixe; proceeding from the fifth, sixth, and seventh *Vertebrae* of the necke, and the first and second of the Chest. The first of which not mixed with any other from the fifth *Vertebra* of the necke, goes to the Muscle *Deltoides* and the skin which covers it.

The other 4 or 5 when they have mutually embraced each other, not onely from their first originall but even to the shoulder, where they free themselves from this convolution, are distributed after the following manner.

The first and second descending to the Muscle mentioned a litle before, and thence sometimes even to the hand, is by the way communicated to the Muscle *Biceps*, and then under the said Muscle it meets and is joyned with the third Nerve. Thirdly it is communicated with the Longest muscle of the Cubite, in the bending whereof it is divided into two branches descending alongst the two bones of the Cubit, untill at last borne up by the fleshy pannicle it is spent upon the skin and inner side of the hand.

The third lower than this, is first united with the second, under the Muscle *Biceps*, then straight way separated from it, it sends a portion thereof to the Arme which lyes under it, and to the skin thereof; lastly at the bending of the Cubit on the fore side, it is mingled with the fift paire.

The fourth, the largest of all the rest, comming downe below the third branch under the *Biceps* with the internall Axillary veine and Artery, is turned towards the outward and backe part of the Arme, there to communicate it selfe to the Muscles extending the Cubit, and also to the inner skin of the Arme and the exterior of the Cubit; the remainder of this branch when in its descent it hath arrived at the joynt of the Cubit, below the bending thereof it is divided into two branches, the one wherof descending alongst the Cubit is spent on the outside of the Wrist; the other associating the Wand is on the outside in like manner in two branches bestowed upon the Thumbe, and in as many upon the fore finger, and by a fift upon the middle finger though more obscurely.

The fift branch being also lower than the rest, sliding between the muscles bending and extending the Cubite, when it comes behinde the inner protuberation of the Cubite (in which place we said before the third branch meets with this) it is communicated to the internall muscles of the same, and then divided into three portions one of which on the outside alongst the middle of the Cubite goes in two sprigs to the litle finger, & so many to the middle finger, and one to the Ring finger, the other

two

two, the one without and the other within the Ring, goe to the hand, where after each of them hath bestowed what was requisite on the muscles of the hand, they are wasted into other five small portions, of which these which are from that portion which descends without the Ring, send two sprigs to the litle, two to the fore and one to the middle finger; but these which come from that which passes under the Ring, by such a distribution communicates it selfe to other fingers, as two sprigs to the thumbe, two to the fore and one to the middle finger. The sixt the lowest and last runs betweene the skin and fleshy Pannicle, by the inner protuberation of the Arme, and then is spent upon the skin of the Cubit.

CHAP. XXV.

The description of the bone of the Arme, and the Muscles which move it.

The great
neffe and
figure.
The Appendix
of the Arme.
The processe
of the Arme.

BEcause we cannot perfectly demonstrate the originall of the muscles of the Arme, (especially of the two Arme muscles) not knowing the description of this bone; first therefore we will describe it, then returne to the originall of the muscles arising from thence. The bone of the arme is the greatest of all the bones in the body, except the Thigh-bone; it is round, hollow and filled with marrow, with a great Appendix or head on the top thereof, having an indifferant necke, to which it is knit by *Symphysis*, for appendices are no otherwise united to their bones. In the lower part thereof it hath two processees, or protuberations, one on the fore side, another on the hinde, betweene which swellings there is a cavity like to halfe the compasse of a wheele, about which the Cubit is moved. The extremities of this cavity ends in two holes, of which one is the more externall, the other more internall: these cavities receive the heads of the Cubite, that is, the fore, or internall receives the fore processe when the arme is bended inwards, but the externall or hinder the exterior, as it is extended.

For the head of the arme it hath a double connexion, the one with its owne necke by *Symphysis*, that is, a naturall union of the bones without any motion; the other with the lightly ingraven cavity of the shoulder-blade, which we call *Glene*, by that kinde of Dearticulation which is called *Arthrodia*; this connexion is made firme and stable by the muscles descending into the arme from the shoulder-blade, as also by the proper Ligaments descending from the circle and brow of the cavity of the *Acromion* and *Coracoides* to this head of the arme; this same head of the arme is, as it were more cleft and open on the inner side, than on the fore side, that so it may give way to one of the Ligaments comming from the shoulder-blade to the muscle *Biceps*. For as much as belongs to the lower end of the bone of the arme (which we said hath two processees) we may say that it is fastened to the bones of the Cubit by two sorts of articulation, that is, by *Ginglymos* with the Ell or proper bone of the Cubit, and by *Arthrodia* with the *Radius* or Wand, which in a lightly engraven cavity receives the fore processe of the arme, and is turned about it for the motion of the hand. The hinder processe is chiefly added for the safety and preservation of the veins, arteries and nerves.

The figure of
the Arme.

These things thus showne, it is worth our labour to know the figure of the arme it selfe, as it lyes betweene the forementioned appendices and processees, that in the case of a fracture, we may know how conveniently to restore it; therefore first we must understand, that this bone is somewhat bended and hollowed on the inside under the cleft of the head thereof, but bunching out on the out and fore side.

The 8 muscles
thereof.

Wherefore seeing it must be moveable forwards and backwards, upwards and downewards, nature for the performance of so many motions hath furnished it with eight muscles, which are sixe proper and two common with the shoulder-blade. Of which number two move it forwards, two backwards, two upwards and downewards. Which must not be understood so, as that these two Muscles should move it directly forwards inclining either upwards, nor downewards; and the other two should move it

Table 24. sheweth the Braine together with the After-braine, the spinall marrow and the Nerves of the whole body.



- A, That part of the braine that is at the nosethrills.
- B, That part which is at the side of the ventricles.
- C, The back part of the braine.
- D, The *Cerebellum* or After-braine.
- E, The Mamillary proceſſe in the right ſide.
- F, The originall of the opticke nerve.
- G, Their conjunctions.
- H, The coate into which the opticke nerve is extended.
- I, The ſecond paire of the ſinewes of the braine.
- K, The leſſer roote of the third conjugation.
- L, The thicke roote of the ſame conjugation according to the common opinion.
- M, The fourth conjugatiō of the ſinews
- N, The leſſer roote of the fiſt paire.
- O, The bigger roote of the ſame paire.
- P, The ſmall membrane of the eare which they call the *Tympany*.
- Q, The lower branch of the bigger roote of the fiſt conjugation.
- S, The ſixt paire of ſinewes.
- T, The ſeventh paire.
- V, The beginning of the ſpinall marrow out of the middle of the baſis of the braine.
- X, The right ſinew of the midriff cut off.
- r, A branch from the fiſt paire creeping to the top of the ſhoulder.

- Z, The fiſt nerve of the arme from whence there goeth a branch to the ſkin.
- A, The ſecond nerve of the arme, and a branch there from into the fiſt muſcle of the Cubite.
- B, The third nerve of the arme and a branch going to the ſkin on the outſide.
- C, A branch from the 3^d nerve to the 2^d muſcle of the Cubite.
- D, The congreſſe or meeting of the ſecond nerve with the third.
- E, A ſmall branch from the 3^d nerve to the 2^d muſcle of the *Radius*.
- F, The diſtribution of the ſecond nerve into two branches.
- G, The leſſer branch of this diviſion lengthened out to the ſkin as far as the thumb.
- a, The place of the ſpinall marrow where it iſſueth out of the braine. 1, 2, 3, &c.
- Thirty paires of nerves ariſing from the ſpinall marrow are here noted by their Char. that is to ſay, 7. of the necke, 12, of the Cheſt, 5. of the loynes and 6, of the holy-bone.
- b, The thicker branch of the 2^d nerve divided into 2, parts.
- c, Branches of the 3^d nerve ſprinkled here and there.
- d, Nerves from the third paire to the thumb, the forefinger and the middle finger.
- ee, The 4th nerve of the arme. f, The paſſage hereof through the inſide of the ſhoulder.
- g, A tripartition of this branch where it toucheth the Cubit. bb, A branch diſtributed from

from the 4. nerve to the outward skin of the Cubite. *i*, the upper branch of the division of the 4. nerve. *kk*, A branch of *i*, reaching to the outside of the hand. *ll*, the lower branch of the division of the 4. nerve passing through the backside of the Cubite. *m*, the 5. nerve of the arme. *n*, Branches of this nerve dispersed here and there. *oo*, A branch of the 5. nerve reaching to the inside of the hand and the fingers. *p*, A surcle of the branch *o*, derived to the outside of the hand and the fingers. *qq*, the 6. nerve of the arme and the course thereof under the skin. *rr*, the intercostall nerves there cut off where they are together with the ribs reflected forward. *ss*, branches on each side running backward. *tt*, Nerves attaining unto the Chest. *uu*, the commixtion of the nerves *rr*, with the descending branch of the 6. conjugation of the braine. *xx*, Nerves from the loynes led unto this place. *y*, A branch going to the testicle here cut off. *z*, A nerve reaching to the 1. muscle of the thigh. *a*, the 1. nerve of the leg. *ab*, A surcle of the former nerve derived to the skin at *a*, and inserted into the muscles at *b*. *c*, the 2. nerve of the leg. *dd*, A nerve from the former, allowed unto the skin as low as to the foot, and passing along the inside of the leg. *e*, a branch of the 2. nerve running unto the muscles. *f*, the 3. nerve of the leg. *g*, a surcle thereof unto the skin. *h*, another surcle unto the muscles. *i*, the 4. nerve of the leg. *xx*, the *anterior* propagations of the nerves proceeding from the holy bone. *l*, the end of the spinall marrow. *m*, a branch from the 4. nerve inserted into the muscles arising from the *Coxendix* or hip bone. *n*, another branch going to the skin of the thigh on the backside. *o*, a propagation derived to the 4. muscle of the leg and to the skin of the knee. *oo*, nerves attaining to the heads of the muscles of the foote. *p*, the division of the 4. crurall nerve into two trunks. *q*, a branch from the trunk *p*, dispersed into the outward skin of the leg. *r*, a surcle of the trunk *p*, derived to the muscles. *s*, another surcle to the skin of the leg on the foreside. *t*, a branch of the trunk *p*, to the skin of the inside of the leg and of the foot. *x*, a surcle of the trunk *p*, to the hindmost skin of the leg. *y*, a branch of the whole trunk *p*, led along to the forward part of the leg and the foot. *z*, the descent of the trunk *p*, into the foot.

it so upwards, as it should incline neither foreward, nor backwards; but thus, that it cannot be moved neither to this nor that part unlesse by the helpe and proper action of this, or that muscle. Thus therefore if the Pectorall with his associate performe their duty or action, the arme is alwayes moved forwards, as it is lifted up by the action of the *Deltoides* and his companion, and so of the rest.

The originall
and insertion
of the pecto-
rall muscle.

But to come to the originall and insertion of these muscles; the one of these two which move the arme forwards called by reason of his originall, the Pectorall, arising from more than halfe of the Collar bone, and almost all the *Sternum* and the 6, 7. and 8, Rib, goes up and fastens it selfe to the *Coracoides*, by a membrane or a membranous tendon sufficiently strong (for which cause it is said to be common to the shoulder & arme) and it goes into the arme betweene the muscles *Deltoides* and *Biceps* with a strong tendon composed of fibers crossing each other, of which some descend from the Collar-bone and the upper part of the *Sternum*, others ascend from the lower originall hereof, that is, from the 6, 7, and 8, Ribs: and although the action of this muscle be diverse, by reason of the diversity of its fibers arising from divers places, yet alwayes it drawes the arme forwards, whether it be moved upwards, downwards, or to the Breast; the other which is his companion descends from the whole lip or brow of the simous or hollow part of the Blade, which it fills in the forepart of the arme neere the head thereof. For the two *Levatores*, or the Lifters up of the arme, the first named *Deltoides* descends from almost halfe the Clavicle, the proesse *Acromion* and all the spine of the shoulder-blade into the foreside of the arme the bredth of foure fingers below the joynt. It hath divers actions according to the diversity of the fibers, as also every muscle hath; yet howsoever it is contracted, whether by the fibers from the clavicle alone, or by the spinall alone, or by both at once, it alwayes lifts and heaves the arme upwards. The other which is his associate descends from the gibbous part of the Shoulder-blade contained betweene the upper rib therof & the spine between the proesses *Acromion* and *Coracoides*, to the neck of the arme; and this we will call the *Epomis* or *Scapularis*, that is, the shoulder Muscle. But the first and larger of the two muscles,

The *Deltoides*

The *Epomis*,
or *Scapularis*.

muscles, which draw the arme backwards, arises from the greatest part of the utter lip of the gibbous part of the shoulder-blade, which is under the spine thereof, & lying upon the blade it self, it goes into the hind part of the arme above the neck thereof. The other which is contiguous to it & his partner in working, but lesser, passes from the upper and exteriour part of the lower rib of the shoulder-blade, and thence as it were in some sort extending it self upon the gibbous part thereof neere unto that rib, it goes into the arme. This muscle seemes to be the same with the former, being fleshy without even above the top of the shoulder. One & the lesser of these two which draw downwards, enters out from the streight line of the lower Rib of the blade, & goes into the lower part of the arme about the neck thereof. The other called the *Latissimus* or broadest, ascends from the spines of the holy-bone, of the Loynes, & often also from the nine lower of the Chest, by the lower corner of the shoulder-blade into which it is inserted by a membranous tendon, as also it is into the inner part of the arme neere unto the necke by another strong tendon; wherupon this muscle is called a common muscle of the shoulder and arme. But when this muscle happens to be wounded, the arme cannot easily be stretched forth, or lifted up.

CHAP. XXVI.

The Description of the bones of the Cubit and the muscles moving them:

After these muscles, follow those which bend & extend the cubit, but because their insertion cannot be fitly demonstrated, unless the bones of the cubit be first described; therefore first of all we will delineate the bones themselves. But verily lest this doubtful word cubit should cause obscurity, first we must note, that it hath a threefold significatiō; for oftentimes it is used for althat part of the hand which lies between the arme & wrest, oft times for the lower bone of this part, sometimes for the upper part of this bone which is turned within the Orbe or Cavity of the arme (no otherwise than a cord in the wheele of a Pulley) and this is called the *Olecranon*. Here truly we use this word Cubit in the first signification. Wherefore we say the cubite is composed of two bones, the one of which we call the *Radius* or Wand, or the lesser *Osse* of the Arme; the other we properly call the Cubit or Ell. These two bones sticke together at their ends being firmly bound together by strong Ligaments; but the middle parts of them are a pretty way distant from each other, & chiefly towards their lower ends, for the better scituation and passage of the muscles and vessells from the inner side, to the exteriour, as shall be shewed in fit place. The wand hath two *Epiphyses* or Appendices, the one at the upper end, the other at the lower. The upper is round & hollowed on the surface like a balon, it receives the fore proesse of the bone of the arme, bound to the same by strong ligaments, descending as wel from that proesse of the arme, as the *Olecranon* into the circumjacent parts of this appendix of the Wand. This connexion is made for this use, that we may turne our hand upwards and downwards by the Cubit turned and twined about this proesse. But the lower appendix of this wand is hollowed on the inside that so it might more commodiously receive the bones of the wrest, but gibbous without, that it might be safer; now this wand is softer and thicker at the lower end, but lesser and harder above, where on the inside it hath a swelling out, wherby to receive the muscle *Biceps*, besides on the outside of the middle thereof it is somewhat gibbous and round, so to become more safe from the injuries of externall bodies, but it is hollowed, or bended on the inside for the better taking, or holding any thing in the hand. But that side which ly'es next to the Ell is flatted for the fitter originall and seat of the muscles; lastly it is seated upon the bone of the Cubit, or Ell, just against the thumb. But the Ell, or bone of the cubit properly & particularly so called, hath in like maner two appendices, the one above, the other beneath. The upper which also is the greater, is fitted to the Orbe of the arme, in which it goes to & again for the extensio & bending of the arme, no otherwise than a rope runs in a pulley but that it turnes not absolutly & perfectly round, which is caused by the two proesses of unequal bignesse, the which are therefore staid in the holes or cavities of the bone of the

What's meant
by the Cubit.

What the
Olecranon is.
The 2 bones of
the Cubit.

The two Ap-
pendices of the
wande.

The figure
and size of the
wande.

The 2 Appen-
dices of the
bone of the
Cubit.

The figure of
the Cubit
bone or Ell.

The muscles
moving the
Cubite.
The *Biceps*, or
2 headed mus-
cle.

The *Brachia-*
uis.

The *Longus*.

The *Brevis*.

the arme, the greater proceſſe which we called *Olecranon* is letted by the exterior hole that ſo the extension of the arme can be no further, but the leſſer proceſſe by the inner hole makes the bending therof the leſſe perfect. The Compoſure of theſe bones is by *Ginglymos*, & it is ſtrengthened not onely by common Ligaments comming from the muſcles, which move the bones themſelves, but alſo by proper Ligaments deſcending from the proceſſes of the arme & the lips of the holes and cavities ſtanding about the Appendix of the Cubit. The other lower and leſſer appendix is in ſome ſort hollow on the inſide for the ſitter receiving the bones of the wreſt, but the outſide is round & ends in a point, whence it is called by the Greeks *Styloides*. But now this Ell (contrary in this to the wand) is thicker towards the arme, but ſlenderer towards the wreſt. And beſides in the thicker part therof it is hollowed or bended towards the inſide, & in the ſame place is gibbous or bunching forth on the out ſide; but it is round & ſtraight, unleſſe on that ſide which lyes next the wand, for the reſt, it is hollow & full of marrow like the wand. The ſire of the *Radius* or wand is oblique, but that of the Cubit or Ell is right, that the arme might be the better & more eaſily moved; becauſe the motion by which the arme is extended & bended is according to a right line, but that by which the inſide of the hand is turned upwards & downwards, is performed obliquely & circularly. Wherefore it was expedient that the wand ſhould be oblique, & the cubit ſtreight for the cubit-bone is appointed for to extend & bend the arme; but the wand to performe the wheeling & turning about therof, & this is the cauſe that it was fitting ther ſhould be a different connexion of theſe bones with the arme. Theſe things were fitting to be ſpoken concerning the nature of theſe bones, that in the cure of fractures we may worke the more ſafely & happily, taking indication from that which is agreeable to nature: wherefore now it remains that we come to the deſcription of the muſcles which are ſeated in the arme, the cubit-bone, or Ell. Theſe are 4, in number, two extending it, & two bending it. The firſt of the Benders is called *Biceps*, by reaſon of its two heads; the one wherof deſcends from the *Coracoides*, that other from the lip of the cavity of the ſhoulder-blade by the fiſſure or cleft of the head of the bone of the arme. Theſe two heads under the necke of this arme becoming fleſhy, are firmly united at the belly & midſt of the arme, & thus united are at length implanted by a ſtrong tendon to the inner protuberation of the wand. The other is called the *Brachialis*, by reaſon of the ſtraite coherence therof with the bone of the arme; this faſtened under the *Biceps* deſcends obliquely on the backe and upper part of the bone of the arme into the top of the wand and the inner ſide of the Ell. But the firſt of the extenders is called the *longus* or Long muſcle, this deſcends from the lower Rib of the ſhoulder, and cleaving to the bone of the Arme goes thither (faſtened and as it were alwayes moſt ſtraightly joyned with his fellow muſcle, ſpecially nere the Cubite) where you ſhall preſently heare. The other termed the *Brevis* or ſhort Muſcle, being the companion of the long, deſcends on the hinde part of the necke of the bone of the Arme, as it were growing to and lying under the former long muſcle, ſo that making one common broad Tendon outwardly fleſhy, inwardly nervous, they are inſerted into the *Olecranon*, ſo by mutuall aſſiſtance to extend the Cubite.

CHAP. XXVII.

The Deſcription of the Bones of the Wreſt, Afterwreſt and fingers.

What the
Hand properly
ſo called is.



E ſaid before that the Hand taken more particularly and properly, is divided into the Wreſt, afterwreſt & fingers, & that the hand in this ſignification is bounded by the ends of the bones of the cubit and fingers. All the parts of the wreſt, which it hath comon with the afterwreſt, have bin already alſo plentifully explained, this only remains to be noted, that the ſkin aſwell of the hands as of the feete, is of a middle nature betweene pure fleſh and pure ſkin, no otherwiſe than that which covers the forehead, but that this which covers the palmes of the hands & ſoles of the feet is unmoveable; But it is moſt thicke, eſpecially on the feete, leſt it ſhould be eaſily offended by continuall going. Beſides the common parts, the wreſt is compoſed of eight ſmall bones mutually knit together in

a certaine order, and by *Diarthrosis* with the two bones of the Cubite, but mutually and amongst themselves by *Synarthrosis*, by interposition of Gristles and Ligaments as well common, that is, coming from the muscles, as proper, descending alwayes from the upper to the lower. But these same bones are some lesse than othersome, besides they are hard and without marrow, gibbous on the outside for the security and comlineffe of the hand, but hollow on the inside for to give way to the tendons going into the fingers. These bones are disposed in two ranke. The first Ranke containes onely three, but the second five. The three of the first Ranke are thus arayed, or placed, that one of them may receive the Appendix *Styloides* of the Cubite; the other the Ell and the Wand together, and the third may be received by the Wand. But three of the five bones of the second order susteine the foure bones of the afterwrest & are knit to the same by *Synarthrosis*, after which manner of connexion they are joynted to the bones of the first ranke; the fourth sustaines the first bone of the Thumbe to which also it is coarticulate by *Synarthrosis*; the fift and last is seated on the inside against the Ell, chiefly above that bone of the first order, which receives the Appendix *Styloides* of the Cubite, this is the least and weakest of them all by reason of its gristley substance, which makes the Ring with certaine Ligaments running from one of the inner sides of the wrest to the other.

What the
Annulus or
Ring is,

This Ring is placed there as well for the preservation of the sinewes, veines & Arteries passing under it (least when we leane upon our hand, or wrest, these parts should be hurt by compression) as also for the commodity of the Action of the muscles bending the finger, which in the performance of their action & the contracting themselves might deform the hand by their passing forth of the Cavity of the wrest. For what attraction soever is made by strings, if it be free and not hindered, is according to a streight line.

Now follow the bones of the second part of the hand, or of the afterwrest. These are foure in number, gibbous without, but arched within, or hollow in the middle; for hence is the palme of the hand, or certainly the greater part thereof; their ends next the fingers are somewhat remote from each other, that in these clefts the Muscles *interossei* might finde a place and seate. But these ends have each an Appendix, as you may perceive in the Skeleton of a childe. But you must note that by the first bone of the wrest or Afterwrest, we meane that which is in the foreside of the hand, that is to say, that in the wrest which lies under the Thumbe, and that in the Afterwrest, which is seated under the forefinger, as these which keepe in order the fingers which exceed the rest in necessity and dignity.

The bones of
the Afterwrest

After these follow the fiftene bones of the fingers, that is, three in each, which are hollow and fistulous full of a thin and liquid marrow, and not of grosse and thicke as in the arme and thigh. They are outwardly gibbous, but inwardly hollow and flat for the fitter seate of the Tendons ascending amongst the fingers on the inside even to the upper joynt. The which that nature might the better strengthen and preserve, it hath produced from the lips of the inner Cavities of these bones a membranous & strong Ligament, which running overthwart from one side to the other doth so straitly close the Tendonsto their bones, that they cannot goe forth of their places, or incline to either side. They are connexed on the outside, that they might be more fit to hold any thing. But for the first bones of the 4 fingers and Thumbe, foure are joynted together with so many bones of the afterwrest by *Synarthrosis*; for the bones of the afterwrest are moved by no manifest motion; the fift is knit to the second ranke of the bones of the wrest, therefore that bone cannot be attributed to the afterwrest, as some have written, seeing it hath manifest motion and is knit by *Diarthrosis*, but the bones of the afterwrest are onely fastened by *Synarthrosis*. For the second and third ranke of bones of the fingers, they are knit the second to the first, and the third to the second by *diarthrosis* and *Arthrodia*, because besides the manifest motion they have, they receive each other by a superficary cavity, as those of the first ranke, the bones of the afterwrest, and those of the second ranke, them of the first; those of the third them of the second. And all the bones of the fingers are larger and thicker at their basis, but smaller towards the ends; and they are bound by Ligaments especially proper, which (as we said formerly) descend from the first to the second; so that the last bones seeing they have not to whom to communicate their nerve, make & produce nailes thereof.

The bones of
the fingers,

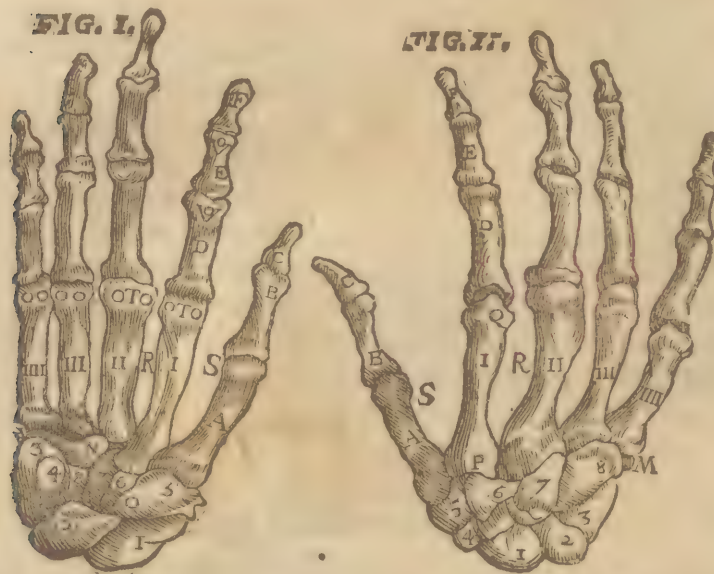
Whence the
nails are ge-
nerated.
The *Ossa*
Sesamoidea,
or Seed-bones.

Wherefore the nails are generated by the fibers of the Ligaments, and the excrement of the tendons which are terminated at the bottom of the nails. Now remaine the *Ossa Sesamoidea*, or seed-bones: these are 19. in number in the inner joynts of each of the hands, and as many in each foote, viz. two in the first joynt of the foure fingers and in the second of the thumbe, and one in each of the rest. For the inner side of the joynts, you may for the most part observe one in each of them; yet in the second joynt of the thumbe there be two, above the two tendons, which are somewhat gristlely.

Their use.

They are made for this use, that they firme and strengthen the joynts, so that the bones of the fingers may not be turned awry, or thrust forth of their places by strong and violent motions, as it sometimes happens in the whirle-bone of the knee. They are called *Sesamoidea* from the resemblance they have to the seed of *Sesamum*, which is somewhat long and flat.

The Figure of the bones of the Hand. The 1. shewes the inside of the right hand, and the 2. shewes the backe side of the same.



The Charact. 1, 2, 3, 4, 5, 6, 7, 8. shew the eight bones of the wrist.

A, 1, 2. The first bone of the Afterwrest lying under the thumbe.

I. II. III. IIII. The 4. other bones of the Afterwrest annexed to the fingers.

B, C. The two bones of the thumbe.

D, E, F. 1, 2. The 3 bones of the forefinger, which are the same in the other fingers.

M, 1, 2. A little bone sometimes fastened outward-

ly at the joynt of the eight bone of the wrist.

N, 1. A proccesse of the eight bone of the wrist, swelling out into the ball of the hand.

O, 1. A proccesse of the fift bone of the wrist, from which a Ligament proceeds.

P, 2. An Appendix of the bones of the wrist, by which they are articulated to the afterwrest.

Q, 2. Another appendix which with its head entreteth into the Cavity of the finger.

R, 1, 2. The space betweene the bones of the afterwrest.

S, 1, 2. Two litle seed-bones set on the inside and outside of the first joynt:

T, 1. Two seed-bones in the first of the 4 fingers.

V. V. 1. One seed-bone in the second and third joynt of the fingers.

CHAP. XXVIII.

Of the muscles which seated in the Cubite move the Wand
and with it the Hand.

The muscles of
the Cubite.

Now must we describe the muscles of the formerly described parts, that is, those which are seated in the Cubit, which are carried to the inside of the hand, and those which are called the *Interossei*. Now the muscles of the Cubit are 14, 7 externall, and 7 Internall; two of the seven externall doe primarily twine

twine or turne up the Wand, and secondarily or by accident turne the Palme of the hand upwards, wherupon they have called them *supinatores*, or turners up of the hand; two extend the wrest, wherupon they are named *Carpitenses* or the Wrist-extend-ers; two the fingers, whence they are stiled *Digitumtenses* or finger-stretchers; to cōclude, the seventh & last is termed *Abductor* or *Obliquator externus*. The first of the two *supinatores* is called the Long, or Longest, because it descends from the outside of the Arme above the processes thereof, and is inserted by a round and strong tendon into the lower Appendix. The other descends obliquely from the outward and upper procelle of the arme, and is inserted at the third part of the Wand by a membranous & fleshy tendon before and on the inside thereof. The upper of the two Extenders of the Wrist, descending above the wand from the externall and upper procelle of the arme is inserted by two Tendons into the first and second bone of the After-wrist, which susteine the fore and middle fingers.

The *Supina-
tores*.
The *Carpi-
tenses*.
The *Digitum-
tenses*.
The *Obliqua-
tor externus*.
The first of
the *Supina-
tores*.
The second.
The upper of
the *Carpitena-
tores*.

The other & lower, descending from the same place as the former, above the Cubit is inserted into the fourth bone of the Afterwrist which beares up the litle finger. These muscles whilest they move alone, that is, each with his Antagonist, to wit the wrist-benders, they move obliquely upwards or downwards the whole hand properly so called. The first and greater of the Extenders of the fingers, or finger-stretchers arising from the *Olecranon*, or bone of the Cubit, descends superficially betweene the two bones of the Cubite even to the wrist, in which place it is divided into 4 tendons, which passing under the Ring seated there, end (each distinguished by a common ligament above the bone of the Afterwrist) in the last joynts of the foure fingers, adhering neverthelesse firmly to the bones, which are above these joynts.

The lower.

The greater
of the *Digitum-
tenses*.

The other which is the lesser arising almost in the middle of the Wand, goes obliquely to the Thumbe into which it is inserted by two Tendons; the one thicker which is inserted into the root thereof, and drawes it from the other fingers; the other slenderer continued even to the upper joynt thereof, and by its action extending the Thumbe.

The lesser.

The seventh which is the *Abductor* or *Obliquator*, is seated at the hinde part of the hand, that is, towards the litle finger; we have often found this divided in two, yea verily we have found it triside, or divided into 3. this yeare in three or 4 dead bodies. one portion thereof went to the lower side of the Ring-finger with two Tendons, the other in like manner to the middle and fore-fingers, and the third to the Thumbe.

The *Obliqua-
tor*, or *Ab-
ductor externa-
mus*.

And for all that it is thus divided, yet some have taken and accounted it for one Muscle, because it hath one originall and action, which is to draw the fingers backwards; some have added to this the extender of the Thumbe by reason of their common originall; and thus of 4. muscles they have made one divided into 7. tendons, distributed, as is formerly shewed. But when the *Obliquator* of the Ring-finger is wanting, as it often happens, the extender of the finger supplyes that defect by certaine productions ostendinous strings. But some also have written, that this muscle which we said hath 7. tendons, is onely a production of the deepe fore muscle, which should be sent through the space betweene the bones of the Cubit; yet I had rather make it a muscle of it selfe, by reason of its strait adhesion with the bones of the Arme and Wand. And let thus much suffice for the externall muscles of the Cubit, which you may comprehend in the number of seaven, as we have done; or in sixe, if you take away one of the 4. or in nine, if you had rather resolve it into 4. with *Galen*; or in eight, if you divide this muscle onely into three. For in very deed the *Abductor* or *Obliquator* of the Ring-finger is not often found in men.

Now must wee come to the inner muscles of the Cubit, the first of which commeth passeth the skin of the palme of the hand, whence it is called the *Palmaris*. The second and third joynd by the communion of their action turne downe or prone the Wand, and consequently the hand, so that the palme lookes towards the feet, wherupon they are called *Pronatores*.

The muscles
of the inner
part of the
Cubit.

The 4. and 5. joynd also in affinity of action bend the Wrist, wherefore they are named *Carpiflexores*, Wrist-benders. The sixth and seventh are appointed to bend the first, second, and third joynts of the fingers, wherefore they are rearm'd

The Palmaris *Digitum flexores, Fingerbenders.* For their originall, the *Palmaris* the least & uppermost of them all, descends fleshy from the hinde proceſſe of the inner arme, & a litle after ending in a long and slender Tendon, it is ſpent in the ſkin of the Palme of the hand even to the roots of the fingers. For it was neceſſary that this ſkin ſhould ſtraitly cohere with the ſubjacent parts, not onely for the fitter taking or comprehension of any thing, leſt that ſkin in holding ſhould be wrinkled & drawne away from the palme and fingers, and ſo be an impediment; but beſides that the hand might have a more exact ſenſe to diſtinguiſh of hot, cold, moiſt, dry, ſmoth, æquall, rough, ſoft, hard, great, litle, and ſuch other qualities. Then follow the two *Pronatores*, of which one called the round, comes obliquely from the inner ſide of the hinde proceſſe of the arme almoſt to the middle of the Wand, to which it adheres by a membranous & fleſhy tendon, even to the place appointed for inſertion. The other ſquare three or foure fingers broad, yet ſomewhat ſlender, ſeated within under all the muſcles which deſcend on the inſide to the wreſt or fingers, upon the ends of the bones of the Cubit, aſcends tranſverſe from below the Ell, unto the top of the VVande where it ends in a membranous tendon. Both the *Carpiflexores*, or VVreſt-benders ariſe from the hinde, but inner proceſſe, and deſcende obliquely (the one more, or leſſe than the other) the one alongſt the Ell, but the other alongſt the wande; and that which deſcends alongſt the Ell, is inſerted into the eight bone of the wreſt, which we ſaid made part of the Ring; the other which followes the VVande is inſerted with his greater part into the bone of the wreſt, and with the reſt into the firſt bone of the After-wreſt which ſuſtaines the fore-finger.

The Digitum flexores.

The Sublimis Digitum flexor.

The profundus Digitum flexor.

Now remaine the *Digitum flexores*, or Fingerbenders, which becauſe they lye upon one another, the upper is called the *Sublimis*, but the lower the *Profundus*. The *Sublimis* or upper, ariſing from the inner part of the hinde proceſſe of the arme, and from the upper parts of the Ell and VVand deſcends betweene theſe two bones of the Cubit even to the wreſt and Ring; divided into 4. tendons it is inſerted into the ſecond articulation of the foure fingers, which it bends by the force of this his proper inſertion; as alſo the firſt, as well by the power of the common ligament, as by certaine fibers cōming from it, which it ſends thither by the way in its paſſage. But theſe 4 tendons nere unto this their inſertion are divided into two, ſo to give paſſage and ad ſtrength to the tendons of the Deep muſcles deſcending into the third and laſt joint of the fingers.

But this ſame *Profundus* or Deepe muſcle ariſing from the upper and inner parts of the Ell and Wand, deſcends betweene theſe two bones under the *Sublimis*, alſo undivided even to the wreſt, where it is divided into 5. Tendons which it brings forth under the common Ligament, and the diviſions of the Tendons of the *Sublimis* even to the laſt joynt of the fingers, which they bend, by this their proper inſertion, as alſo the bones of the firſt and ſecond joynts of the fingers by the meanes of the common Ligament and fibrous productions which they beſtow upon them by the way. Beſides theſe forementioned there is ſeene alſo a certaine membranous Ligament which engirts the tendons in the compaſſe of the fingers.

CHAP. XXIX.

Of the Muscles of the inside of the hand.

The number of the muscles of the inside of the hand.

The Thenar.



He muſcles of the inſide of the hand are 7 in number; the firſt is called *Thenar* becauſe it makes the greater part of the Palme; the ſecond from the ſite is called the *Hypothenar*; the third the externall *Abductor* of the Thumbe. The 4. other are called by reaſon of their figure the *Lumbrici* or wormy muſcles, or the *Adductores*, or Drawers of the foure fingers to the thumbe. Now the firſt called *Thenar*, thicker than the reſt, ariſes from all the bones of the Afterwreſt, taking its beginning from that bone which beares up the Ring finger, whence aſcending alongſt the Vitall line even to the end therof at the firſt bone of the After-wreſt ſuſtaining the fore finger, & it is at length inſerted into the laſt joynt of the Thumbe by the longſt fibers

fibers, but by the middle and shortest fibers almost into all the inner part of the first bones of two joynts, and by reason of this, the thumbe is drawne to the other fingers, and from them againe by his lower originall.

Some devide this muscle into three, by reason of his diverse actions, making the first to arise from the roote of the bone of the afterwrest which beares up the ring finger; but the other from that middle bone of the afterwrest which sustaines the middle finger; but of the third, from the upper end of that bone which underprops the fore finger, and that the infertion of them all, is, as we formerly mentioned. But the former opinion likes me better, both for thunning confusion, and abbreviating the doctrine of the number of muscles.

The *Hypothenar* arises from the fourth bone of the afterwrest, and that bone of the wrest which sustaines it, and then with its longest fibers, it is inserted into the second joynt of the ring-finger, and by the shortest into the first, through which occasion, as also in respect of its twofold action, some have devided it into two, that the one of them might leade it from the rest, and the other might draw it to the thumbe.

The third the externall *Abductor* of the thumbe, descends from the first bone of the afterwrest, into the first and second joynt of the thumbe; wherefore some have devided it into two. The *Lumbrici*, or foure externall *Abductores* of the foure fingers arise from a membrane, investing and binding together the tendons of the *Digitum-flexores*, or fingerbenders, and at length on the sides towards the thumbe even by a small tendon, running even to the second joynt of the foure fingers.

Now the *Interosses* of the afterwrest, remaine to be spoken of; these are sixe, two in each of the spaces betweene the fingers, one Internall, the other Externall, of which the Internall descending with oblique fibers from the side of the first bone of the afterwrest, goes also into the sides of the fingers, that so it may the more closely binde together the bones of the afterwrest, whose action is manifested when wee thrust our fingers into a strait glove, or when we bend our hand. Some thinke that it helpes also the drawing of the fingers towards the thumbe. The Externall ascends also by oblique fibers from the sides of the second bone of the afterwrest, to the first joynts of the fingers, intersecting the internall which we now described after the manner of the letter X, for to extend the palme of the hand, and helpe the drawing away of the fingers from the thumbe.

Here concluding the description of the muscles of the whole hand taken in generall, you shall note that they are 39. in number, that is, eight appointed to move the arme; foure ser to move the cubit in generall; seven seated on the outside of the cubit, and as many on the inside in the same cubite, moving the wand, and with it the hand; seven on the inside of the hand: and lastly, the sixe *Interosses*. Some encrease this number, saying, there are nine on the externall part of the cubite, and eleven on the inside of the hand.

CHAP. XXX.

A Description of the Legge taken in generall.

After the hand follows the description of the legge. Wherefore to take away all doubtfulnesse, we will first define the legge; then devide it into the parts more and lesse compound; thirdly we will prosecute all things common to all these parts; fourthly, those which are peculiar to each, and then, God willing, we will give an end to our Anatomy.

Now this word *Crus*, or Legge, is used two manner of wayes, that is, either generallly and specially, and specially againe after two sorts, that is, either absolutely and simply so, or with an adjunct. It is simply taken for all that which is betweene the knee and the foote. But with an adjunct for the greater bone thereof. But the legge taken in generall, is the instrument of going, containing all whatsoever is from the hipps, to the very ends of the toes. It is devided into three great parts, that is to say,

The thigh.
The legge or
shanke.
The foote,

say, the Thigh, the Legge, or Shanke, and the Foote. By the thigh we meane that which lies betweene the hippe and the knee. By the legge, properly so called, or shanke, that which is contained betweene the knee and the foote. By the foote all from thence to the ends of the toes.

The division
of the foote.
The Instep.

Againe, they deuide the foote into three parts, that is, the *Tarsus* or Instep, the *Pedion* or top of the foote, and the *Digiti pedum*, or toes. We understand by the instep, that which is contained in the first seven bones, which answers in proportion to the wrest of the hand. By the top of the foot, that which is comprehended in the five following bones, which is answerable to the afterwrest. That which remaines, we call the toes. But because all these parts have other common and proper parts, we will onely follow the distribution of the veines, arteries, and nerves; seeing we have sufficiently explained the rest, when we described the containing parts of the body in generall.

The top of
the foote.
The toes.

CHAP. XXXI.

A Description of the Crurall veine.

The begin-
ning of the
Crurall veine.
The two
branches
thereof.



The Crurall veine begins then, when the hollow veine passing forth of the *Peritoneum*, and stretched to the hanch bone, and the sides of the *Pubis* in the groine, is first divided into two large branches; the one of which descends on the inside alongst the bones of the whole legge, together with the artery and nerve; the other runnes downe outwardly and superficially alongst the legge, betweene the fat lying under the skinne, and the muscles even to the foote, and is spent in the skinne thereof. This because it is alwayes apparent and manifest, is called properly by the Greekes *Sapheia*, but commonly *Saphena*.

By what
veines, the
matter causing
those tumors
called *Bubones*
flows downe.

This veine by the way presently at its originall is devided into two branches, the one internall, the other externall; of which the internall is spent upon the *Bubones*, and other glandules of that place and the skinne, and by this branch come the defluxions called *Bubones*; the other branch is waisted in the fore and utter skinne of the upper part of the thigh; then a little lower, that is, about the bredth of three or foure fingers, it is gathered againe into one branch made of many little ones, which is spent in the fore and hinde skinne of this thigh. Thirdly, a little below the middle of the thigh it is againe devided into two other branches, of which the one goes into the skinne on the fore side, and the other on the hinde side. Fourthly, it is distributed by two other small spriggs into the skinne, on the fore and hinde part of the knee; which oftentimes are not found, especially when the *Poplitea* or ham veine, is somewhat larger than ordinary. Fifthly, a little below the knee, it produces two other branches, lying upon each other in their passage out into the fore and hinde skinne of that place. You must note, that branch which runnes into the skinne of the hinde part, is carried by a certaine other sprigge, which it produces, into a branch of the *Poplitea* passing forth of the two twin muscles. Sixthly, in the bigger part of the calfe of the legge, it is divided into two other branches, which in like manner are distributed into the skinne, as well in the fore side as the backe side of the legge.

Where and in
what diseases,
the *Sapheia*
must be open-
ed.

At length after many other divisions, which for brevitie sake, I omit, when it arrives at the fore and inner side of the ankle (where it is commonly opened in the diseases of the parts below the midriffe which require bloud-letting) it is parted into two other branches, the lesser of which descends to the heele, the other in many spriggs is spent upon the skinne of all the upper and lower part of the foote and toes.

Towhat plas-
ces, and by
how manifold
deviſions the
internall
branch of the
crurall veine
goes.
Ischiadica ve-
ne.

The second branch of this Crurall veine, which wee said descends within together with the artery and nerve, even into the foote, is devided; first peircing somewhat deepe in, it produces foure divarications; one internall descending below the originall of the *Sapheia* into the muscle called *Obturator externus*, and into certaine other externall muscles. The three other runne outwardly, the first towards the huckle bone, by which the *Ischias* is made, the two other into the fore muscles of the thigh, neither are these spriggs far remote from one another. Secondly, all that branch

is devided into two other branches, the one above, the other below, an artery alwayes accompanying it; the lower of which is spent upon many of the hinder *Muscula Genae* muscles of the thigh, ending nigh the ham. The upper, besides, that it bestowes many branches upon the fore and inner muscles of the thigh, descending to the ham, it produces the *Poplitea* or ham veine, made sometimes of two branches, the one proceeding from above, and the other from below. This *Poplitea* descending by the bending of the ham, is spent one while upon the skinne of the calfe of the legge, another while upon the knee, otherwhiles encreased with branches of the *Saphia*, it goes on the outside of the ankle to the skinne, on the upper side of the foote, and sometimes on the lower. *Poplitea Vena*

Thirdly, a little below the originall of the ham veine, and under the bending of the knee, it brings forth the *Suralis*, which is bestowed upon the muscle of the *Sura*, or calfe of the legge, and upon the skinne of the inner side thereof, and of the foote continued sometimes even to the inner part of the great toe. *Suralis Vena*

Fourthly, under the head of the hinder appendix of the bones of the legge, it produces betweene the setwo bones, another veine, which nourishing the fore muscle of the legge, is consumed upon the foote.

Fifthly, and lastly, it brings forth the *Ischiadica maior* or greater *Ischias*, which is devided into two branches of an unequall bignesse; the larger whereof, from his originall descending alongst the inner part of the legge bone, insinuates it selfe under the muscles of the calfe, betweene this and the heele, into the sole of the foote, upon which it is wasted, devided into ten small sprigs, two for each toe; the other being the lesser descending alongst the *Perone*, or shin-bone, is consumed betweene it and the heele, yet sometimes it is produced, not onely even to the muscle the *Abductor* of the toes, but also by five furcles, even to the fourth toe, and the sides of the middle toe. *Ischiadica maior*

CHAP. XXXII.

The Distribution of the Crurall Artery.



He crurall artery arising from the same place whence the crurall veine proceeded, and descending with the internall crurall veine is distributed as followeth.

First, into the muscle of the thigh, which spreading it selfe through the muscles therof meets with the utmost *hypogastrica*, descending with the veine through the common hole of the huckle and share bone, and is joyned with it. *Arteria musculi*

Secondly, when it arrives at the ham, betweene the *Condyles* or processees of the legge, it sends two branches into the knee.

Thirdly, a little after it produces another branch, which it sends to the exterior muscles of the legge, and when it arrives at the middle of the legge, it is devided into two branches, betweene the twin muscles and *Soleus*, the one internall, the other externall; the internall, some furcles communicated by the way to the parts by which it passes, but specially to the joynt of the ankle, stretches it selfe over the sole of the foote, betweene the lower extremity thereof and heele, whither, when it arrives it is divaricated into five furcles, of which it bestowes two on the great toe, two on the next, and one on the middle toe. The externall descending in like manner to the sole of the foote, betweene the *fibula* and the heele, besides other sprigs, which it may spread by the way, it produces one without on the joynt of the ankle, another in the muscle, the *Abductor* of the toes, to the wrest and backe of the foote. But the remainder is devided into five portions, of which two are sent to the fourth, and two to the little toe, and one to the middle.

CHAP. XXXIII.

Of the Nerves of the Loynes, Holy-bone and Thigh:

The five conjugations of the nerves of the loynes.



Here arise five conjugations of nerves from the loynes, devided into externall & internal branches; the externall are disseminated into the *Rachita* or chin muscles, the muscles *Semispinatus* and *Sacer* and the skinne lying over them. The internall are sent into the oblique ascendent and transverse muscle of the lower belly, into the *Peritoneum*, into the loine and chest muscles arising there, but after a different manner; for some are absolutely carried thither, as the nerves of the first conjugation of the loynes, and oftentimes also of the second, but that sometimes they send a small sprigge to the testicles, when the Costall have sent none thither; but some lower are partly distributed there, and partly sent some other way; for the greater portions first united amongst themselves, then presently with the portions of these of the holy-bone, goe into the thigh, as we shall shew in the distribution of the nerves of the holy-bone.

Where the testicles have their nerves.

The conjugations of the nerves proceeding through the holybone.

Now from the holy-bone, proceede fixe conjugations of nerves, reckoning that for the first which proceeds from the last *Vertebra* of the loynes, and first of the holy-bone; and that the fixte which proceeds from the lowest part of the holy-bone, and the first of the rumpe; these conjugations of nerves are devided into externall and internall branches.

An Anatomist call axiome,

The lesser externall passing forth by the externall and hinder holes of the holy-bone, are distributed into the parts properly belonging thereto, to wit, the muscles and skinne thereof; for every nerve by the law of nature first and alwayes yeelds to the neighbouring parts, that which is needefull, then presently to others as much as it can.

Wherefore if thou wouldst know whence each part hath his vessels at the next hand, that is, the veines, arteries and nerves, thou must remember the site of each part and the course of the vessels, and to consider this, that the veines and arteries as speedily and conveniently as they can, insinuate themselves into the parts, sometimes at the head or beginning, somewhiles by the middle, or extremes thereof, as there is occasion.

But a nerve principally enters a muscle at the head thereof, or at least not farre from thence, but never by the taile, whereby it may easily be understood by what branch of each veine, artery, and nerve, each part may have nourishment, lift, and sense. The other internall branches of the foresaid conjugations goe, especially the foure uppermost united from their originall with the three lowermost of the loynes, into all the legge, as you shall presently heare. But the two lower are consumed upon the muscles called *Lervateres Ani*, the *Sphincter* muscle of the same place; besides, upon the muscles of the yard, and necke of the bladder in men, but in women upon the necke of the wombe and bladder.

For these parts admit another in their bottome from the costall nerve, being of the sixth conjugation of the braine; these thus considered, let us come to the nerves of the thigh, which (as we said) from their first original, as it were compacted and composed of the greater portion of the three inner and lower branches of the loynes, and the foure upper of the holy-bone, are devided in the thigh into foure branches, of which the first and higher descending from above the *Peritoneum*, to the little *Trochanter*, is wasted upon the inward and superficially muscles of the thigh, and the skin which covers them a little above the thigh.

The second, descending with the crurall veine and artery by the groine, is devided into two branches like as the veine, the one internall, the other external, of which the internall descending with the veine and artery is sent into the inner and deepe muscles of the thigh ending above the knee. But the externall descending superficially with the *Saphaia*, even into the foote, gives branches by the way to the skinne which covers it.

The third seated under these former, passing by the hole common to the share and hanch,

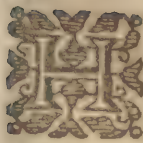
hanch-bone, send s certaine branches to the groines, to the muscles called *Obturatores*, to the *Tricipites*, and sometimes to the muscles of the yard, and it ends at the midst of the thigh.

The fourth, which is the thickest, solidest, and hardest of all the nerves in the body, descending wholly from the productions of the holy-bone, and descending outwardly betweene the lower part of the same bone, and the *Os Ilium*, or Hanch-bone to the thigh, bestowes certaine sprigges to the hinde muscles thereof proceeding from the protuberation of the *Ischium* or huckle-bone, and in like sort it gives other-some to the skinne of the buttocks, and also to the skinne covering the forementioned muscles.

A little after, it is parted into two branches descending undevied even to the bending of the knee, they both are communicated by diverse furcles of the muscles of the legge; yet so as the lesser produces another branch from the rest of the portion thereof descending on the fore part of the legge, alongst the shin-bone unto the top of the foote, where it is devided into tenne furcles scarce apparent to the sight, two running to each of the toes. The other greater descending in like manner in the remainder of its portion by the hinde part of the legge into the sole of the foote, casts its selte with the veines and arteries betweene the heele and legge bone; where first devided into two branches, each of which presently parted into five, send two sprigs to the sides of the toes. And these are the most notable and necessary distributions of the vessels and nerves; we purposely omit others which are infinite, and of which the knowledge is impertinent.

CHAP. XXXIII.

Of the proper parts of the Thigh.

AVING explaned the common parts of the legge in generall; now wee must come to the proper, beginning at the Thigh. The proper parts of the Thigh, are muscles, bones, and ligaments. But because the demonstration of the muscles is somewhat difficult, if we bee ignorant of the description of the bones from whence they arise, and into which they are inserted; therefore we judge it worth our labour, first to shew the bones, and the dearticulation of these of the Thigh; beginning with these bones which are knit with the upper part of the holy-bone. And they are two in number, on each side one, commonly called the *Ossa Ilium*; each of these is composed of three bones, of which one is the upper, another the lower and anteriour, and the third the middle, and after a manner the posteriour. The upper by a particular name is called the *Os Ilium*, the hanch-bone, and it is the largest and biggest, having a gristlely appendix in the compass thereof, even to the connexion it hath with the other neighbouring bones, whole upper part we terme the right line thereof; but the *basis*, which is adjoynded to it by *Symphysis*, we call the lippe or brow therof, because it stands both somewhat out and in, after the manner of the brow. But that which lies betweene the *basis* and straight line we name the ribbe; this same upper bone hath two hollow superficies, the one internall, the other externall. The connexion thereof by *Symphysis*, is twofold, the one with the upper part of the holy-bone; the other with that bone wee called the middle, and after some sort the posteriour; which taking its beginning from the narrower part of the *Os Ilium*, makes that cavity in which the head of the thigh is received; this cavity the Greekes call *Coryle*, the Latines *Acetabulum*, and it is ended by the side of the hole common to it, and the share-bone; this middle, and in some sort posteriour bone is called properly and particularly the *Os Ischy*, or huckle-bone, and contains nothing else but the forementioned cavities, but that on the hinde and lower part thereof, it brings forth a proceffe, which adjoyndes it selfe to the share bone at the lower part of the common hole, in which place it appears very rough and unequall, and it is called the tuberositie of the huckle-bone, at whose extremity also it brings forth a little head somewhat resembling the proceffe of

Of how many bones the *Ossa Ilium* consist. What the *Os Ilium* strictly taken is.

What the line, lippe, brow, and rib, of the *Os Ilium* are.

The *Os Ischyum*, or huckle-bone.

The *Os pubis*,
or share-bone.

of the lower jaw called *Corone*. The third bone named *Os pubis* or the share-bone, stretches it selfe even to the highest part of the *petten*, where meeting with the like bone of the other side, it is united to it by *Symphysis*, after which manner also, all these three bones are united; it is reported, that this bone opens in women in their travell, yet hitherto I can finde no certainty thereof.

The Figure of the Thigh-bone.



A 1, 2. The head of the thigh going into the cup of the hip-bone.

B, 2, A sinus in the head of the thigh, into which is inserted a round Ligament.

C 1, 2, The conjunction of the appendix of the thigh with the bone it selfe.

D 1, 2, 3, the necke of the thigh.

E, F, the two lower heads of the thigh.

G, 1, 2, The conjunction of the lower appendix.

H, 1, 12, A sinus betwixt the two heads of the thigh.

K 2, A part of the lower head of the thigh, from whence the first muscle of the foote doth proceede.

L 2, Another part from whence the second and first muscles arise.

M 2, Another part to which the Tendon of the fifth muscle of the thigh is in-fixed.

N 1, 2, A sinus of the outward side of the head for the fourth muscle of the legge.

O 2, A sinus of the inside

through which the tendons doe passe. **P 2,** A protuberation at which the said tendons are reflected. **Q 2,** the upper processe of the thigh, and betwixt **Q** and **D** is the sinus. **R 1, 2,** the union of the processe with the thigh. **S S 2,** a rough line from the impression of the externall processe. **T 1,** the anterior impression of the internall processe. **β,** betwixt **T** and **V** another impressiō higher than the former. **V 1, 2,** the fourth impressiō in the toppe of the processe. **X 3,** Four **X**, shew the foure appendices of the thigh. **Y 3,** Three **Y**, shew the three heads of the thigh. **Z Z 3,** Two processe of the thigh. **a 1,** the interior processe of the thigh. **b 1,** the conjunction of the processe with the thigh. **cc 2,** a line descending obliquely from the inner processe. **dd 2,** a line running through the length of the thigh. **e 2,** the largeness of the thigh in this part. **f 1,** a roughness from which the eighth muscle issueth. **g, b 5,** a knob of the Whirle-bone going into the sinus marked with **I**, which is betwixt the heads of the thigh. **i 5,** a sinus fitted for the inner head of the thigh. **k 5,** a sinus agreeing with the externall head of the thigh. **l 5,** the lower asperity or roughness. **m 4,** the foreside of the pattell or whirle-bone rough and unequall.

You may perceive a manifest separation of these three bones in the *Skeleton* of a child; for in those who are of more yeares, the gristles which runne betwene these connexions turne into bones.

Now follows the thigh-bone, the biggest of all the bones of the body; it is round, and so bended, that it is gibbous on the exterior and fore part thereof, that so it might be the safer from externall injuries; but on the hinde and inner part, it is hollow or sinuous, like to the backe of an Asse, whereby the muscles might have a more commodious originall and infertion.

The descrip-
of the thigh-
bone.

That sinuous part a little below the midst thereof, is divided into two lines, the one whereof goes to the internall tuberositie, the other to the externall of the lower appendix of the same thigh. These are chiefly to be observed, because the oblique fibers of the vaste muscles thence take their originall.

Besides, this bone hath two appendices in the ends thereof, as easily appears in a child's thigh; the upper appendix, makes the round head of the thigh it selfe, which (as every other appendix) seated upon a long necke, is received in the cavitie of the hanch-bone by *Enarthrosis*; it is staid and fastened there by two sorts of ligaments, of which the one is common, proceeding from the muscles, which descend from above, about the necke thereof; the other is proper, which is twofold, that is, one membranous and broad, proceeding from the whole cavity of the orbe, or cuppe, descending about all the head of the thigh, above the necke thereof; the other thicke and round, descending from the second cavity of the *Coryie* it selfe, which is extended, even to the common hole at the top of the head thereof.

The two ap-
pendices of
the thigh-
bone.

Besides, under this head, that bone hath two proceses, the one great and thicke, the other little and short.

The two pro-
cesses of the
thigh-bone
make the two
Trochanters.

The greater seated in the hinde part, is called the great *Trochanter*; the lesser situate in the inner part, is named the little *Trochanter*.

But you must note, that the great *Trochanter*, on the higher and hinde part thereof, which lookes towards the head of this bone, makes a certaine small *sinus* or bosome, into which the twin muscles and others, whereof we shall hereafter speake, are implanted; we must also consider the multitude of holes encompassing this necke, betwene the head and the two *Trochanters*, which yeeld a passage to the vessels, that is, the veines, arteries, and nerves, into the marrow of the bone it selfe, whence the marrow it selfe becomes partaker of sense, especially on that part which is covered with a coate, and the bone lives and is nourished.

Whence the
marrow be-
comes parta-
ker of sense.

The other Appendix of the thigh, that is, the lower, is the greatest and thickest, rising, as it were with two heads, which are divided by two cavities, the one superficialie and on the fore side, whereby it receives the whirle-bone of the knee; the other deepe, and on the backe part, by which it receives the gristely and as it were bony ligaments, proceeding from the eminencie which is seene betwene the two cavities of the upper appendix of the bone of the legge, which *Hippocrates*, lib. de *fracturis*, calls in his tongue *Diaphysis*.

CHAP. XXXV.

Of the muscles moving the thigh.



The muscles of the thigh are just foureteene in number, that is, two bend it, whereupon they are called the *Flexores*, or benders; three extend it, whereupon they are called *Tensores*, extenders; three move it inwards, driving the knee outwards, and drawing the heele inwards, as when wee crosse our legges; yet some make these three one, and call it the *Triceps*, or threeheaded muscle. Sixe spread it abroad, and dilate it, as happens in the act of venery.

Their number.

Fourte

Four of these are called *Gemini* or Twins, by reason of the similitude of their thicknesse, originall inserrion and action; the two other are called *Obturatores*, because they stop the hole which is common to the share and backe bones.

The two
flexores.

Now one of the two *Flexores*, being round, descends on the inside with fibers of an unequall length from all the transverse proceffes of the loines, above the hinde commissure of the hanch and share-bones, and is inserted into the little *Trochanter*; the other broader and larger from the originall passes forth of the whole lippe, and inner brow of the hanch-bone, and filling the inner cavity thereof, is inserted above the fore part of the head of the thigh, into the little *Trochanter* by a thicke tendon, which it with the fellow muscle lately described, produces, even from the fleshy part thereof, wherefore you neede to take no great paines in drawing, or plucking them away.

The three
Tenses.

The three *Tenses* or extenders, make the buttocks, of which the first being the thicker, larger, and externall, arising from the rumpe, the holy-bone, and more than halfe of the exterior and hinder lippe of the hanch-bone, is inserted by oblique fibers, some foure fingers breadth from the great *Trochanter* at the right line, which we said, resembled an Asses backe.

The second, which is the middle in bignesse and site, descends from the rest of the lippe, and from the fore and outward ribbe of the hanch-bone, and above the midst of the bone, is inserted into the upper part of the great *Trochanter* by a triangular insertion above the upper and exterior part thereof.

The third being lesser, shorter and thinner, lying hidde under these former, proceeds from the middle of the externall surface of the hanch-bone, and then is inserted into the greater part of the right line of the great *Trochanter*.

These three muscles have a great and large originall, but a narrow insertion, as it were by oblique fibers.

Three Intro-
movers.

Then follow those three muscles which move the thighs inwards, straiten and crosse then, so that the knee stands forwards or outwards, but the heele is drawne inwards, as you may understand by their insertion, although some thinke otherwise. But these three muscles by their originall, partly fleshy, and partly membranous, arise from the upper and fore part of the circumference of the share-bone, and thence are inserted into the hinde line of the huckle-bone, some higher than othersome; for the lesser and shorter stayes at the roots of the little *Trochanter*, the middle descends a little deeper, the 3. with the longest of his fibers, descends even to the midst of the line.

This if it be so, that is, these muscles proceeding from the fore and upper part, to be inserted into the hinder line of the huckle-bone, whilest they alone performe their action, and draw the thighs together, they will turne them outwards, just so as when we put them acrosse, but they will not draw one heele to another, and put the heele outwards, for such like motion is performed by the inner *Vaste* muscle of the thigh, moving the legge. Now follow the fixe which move the buttocks.

The movers
of the but-
tocks.

The first, and higher of the *Quadrigemini*, or the foure twin muscles, passes forth of the commissure of the holy-bone, with the bone of the rumpe, or rather from the lowest extreme of the holy-bone, and thence it is inserted into the cavity of the great *Trochanter* by a tendon of a sufficient largenesse.

The second proceeding from the hollow part or fissure, which is betweene the extremity of the huckle-bone, and the tuberositie, or swelling out of the same, is inserted in like manner into the cavity of the great *Trochanter*.

The third, ascends from the inner part of the swelling out of the huckle-bone, a little above, betweene the two *Trochanters*, into the cavity of the greater of them.

The fourth, and last, the lowest and broadest of them all proceeds from all the exterior protuberancie of the huckle-bone, and thence is inserted into the great *Trochanter*, and these foure muscles lie hid under the thicke and more eminent part of the buttocks; wherefore that you may the better shew them, they must be turned up towards their originall.

The two Ob-
turatores.

The two *Obturatores* remaine to be spoken of, that is, the internall and externall, both which arise from the circuite and circumference of the hole which they stoppe, which as wee said is common to the share and huckle-bone,

bone, but the internall ascends to the exterior roote of the great *Trochanter* by the middle fissure betweene the upper part of the protuberancy of the hucklebone, and the spine which stands up in the hinder basis of the hanch-bone.

But the externall proceedes from the exterior cavity, and the middle space betweene the tuberosity of the huckle-bone and cavity thereof, and is inserted in the lower part into the cavity of the great *Trochanter*, together with the *Quadrigeni*.

If you would plainly see the exterior *Obturator*, you must either cut off the beginning of the three-headed muscle, or handsomely pluck it away, and then extend it, and turne it up; The internall is easily discerned when the bladder is taken away.

CHAP. XXXVI.

Of the bones of the Legge, or Shank.



Those which would describe the muscles of the legge, ought first to describe the bones thereof, beginning at the *Rotula*, or whirle-bone of the knee.

What the *Pec-
tella*, or whirle-
bone of the
knee is.

This bone is gristlely on the outside, and round in compasse, but on the inner and middle part after some sort gibbous, but somewhat flatted at the sides, that so it may be fitlier applied to the joynt of the knee, and fitted within the anterior cavity of the two *appendices* of the thigh, and the upper and foremost of the legge.

The use thereof is to strengthen the joynt of the knee, and to hold the legge at his due extent, so that it may not be bended so farre forwards, as it is backwards.

The use thereof.

The bones of the legge are two, the one thicker, called by the particular and proper name, the *Os Tibia* or legge-bone; the other which is lesler, is termed *Perone*, or *Fibula*, but commonly the lesser *scapula*, (and in English it may be termed the shin-bone.) The thicker being hollow and marrowie, is seated in the inner part of the leg, having two processes, the one bigger, the other lesse.

What, and
how many
bones the legge
hath.

The legge-
bone.

The bigger seated on the upper part of the bone, and conjoyned to it by *Symphysis*, makes two superficial and side cavities disioyned by an indifferent rising; wherefore this bone is connect to the bone of the thigh by *Ginglymos*. For in the cavities thereof it receives the lower and hinder protuberances of the Appendix of the thigh-bone, but the middle eminencie thereof, is received by it betweene the two protuberances thereof.

This joynt is strengthened, not onely by the force of the tendons, or muscles ending there, but also of three strong ligaments, of which one proceedes from all the externall, another from all the internall part of that connexion; the third which we, out of *Hippocrates*, called *Diaphysis*, from the distance or space betweene them. The other processe of the legge-bone, which we called the lesse, seated in the lower part thereof, makes as it were a double cavities, whereby it receives the *Astragalus* or *Pasterne* bone; but on the inside it makes the ankle, as the *Perone* makes it without: betweene these ancles the *Astragalus* is received on the sides, and turned as the nut in a Crosse-bow, as often as there is neede to bend or extend the foote. Besides, this same leg-bone, being triangular hath three eminencies made in the shape of an Asses back; the sharper descends alongst the fore part, called by the Greekes *Anticnemion*; the second resides on the inner part, and the third on the outer; all these must be diligently observed, and chiefly, that on the fore part; because it is as a guide and rule to a Chirurgion in the well setting of a broken legge. The *Perone*, or shinne-bone, is seated, as it were, on the outside, and as behinde the legge-bone; it hath also two *appendices* hollow on the inside, but gibbous on the out. This bone by the upper of these is fastened and inserted under the inner, and in some sort the hinder *appendix* of the legge-bone, so that it is in no sort articulated with the thigh, but

What *Diaphy-
sis* is.

The *Perone* *fi-
bula*, or shin-
bone.

serves onely in stead of a leaning stocke. But by the lower, this same bone is not onely received in the lowest part of the legge, or ankle, or pasterne bone, but also receives part thereof, which is joined on the same side with the heele, especially then when we bend our foote outwards.

This bone is fastened to the forementioned bones by *Synarthrosis*, but bound by strong ligaments proceeding from the same bones, and mutually sent from one to another, or if you had rather, from the upper into the lower, as we said in the arme. But this same *fibula* or shin-bone is also triangular, having three lines, of which one stands outwards, another on the fore-side, and the third behinde.

CHAP. XXXVII.

Of the Muscles of the Legges.

Their number.



ALL the motions of the legge are performed by eleven muscles, of which there be sixe on the fore-side, and five on the hinde. But of these, some move the legge onely, as those which take their originall from the bone of the thigh; others truly move the legge, but with the thigh, as those which arise above the thigh, that is, from the hanch, huckle, and share-bones.

The Longus.

The first of these on the fore-side, called the Long, but commonly the *Sutorius* (or Tailor-muscle by reason of its action) it arises from the lower and fore extremity of the spine or appendix of the hanch-bone, and descending obliquely above the other muscles, is inserted by a large and membranous tendon, into the fore and inner part of the legge under the knee; the action thereof is to crosse the legges, but being first bended by the muscles presently to be treated of, it helps also the three headed muscle in the performance of the forementioned action.

The Membranousus.

The second of these fore muscles is termed the *membranosus*, or membranous, because it is wholly such, unlesse at the originall where it descends fleshy from the roote and basis of the above mentioned spine of the hanch-bone, and that obliquely with its membranous and broad tendon (mixed with the common coat of the muscles) into the outward part of the legge, which it moves outwards, as also the thigh with the foure twin muscles; for as we have in another place observed, of two oblique motions, concurring in one, is made a right motion; and besides, almost all the motions of the body, are thus performed; the muscles which performe such motions are placed and opposed in an oblique site, as may be perceived by the motions and site of the muscles of the hand taken in generall.

The Rectus.

The third, called the *Rectus*, or right (because it descends above the *Crureus*, alongst the right fore-line of the thigh, betweene the two *Vastæ* muscles) comes forth betweene the extremity of the appendix of the hanch-bone and cavity thereof, with a very strong ligament, and then is inserted into the fore part of the legge, passing over the midst of the whirle-bone of the knee; it extends the legge, with the three following, but by accident it may helpe the bending of the thigh.

The two Vasti.

The fourth and fifth are called *Vasti*, Vaste or huge muscles, by reason of their largenesse; the one of these is internall, the other externall: they both arise with right fibers, from their originall, but with oblique at their insertion, by reason whereof they both seeme to have a compound action from a right and oblique motion; the right helping for the extension of the legge, but the oblique to draw one knee to another, or to desioyne both the knees; the internall comes by its right fibers from the root of the little *Trochanter*, but by its oblique from the inner descendent line of the thigh. The externall passes forth by its right fibers from the root of the great *Trochanter*, but by the oblique from the externall descendent line of the same bone. But all these fibers are in certaine places so mixed with the *Crureus* that they cannot be separated unlesse you violate the one of them; they goe into the legge (each on his side) above the whirle-bone of the knee alongst the sides of the right muscle, with which it makes an unseparable tendon, as you shall presently

The Crureus.

heare. The sixth and last of these fore muscles called the *Crureus*, or Thigh-muscle, (by

(by reason of the strait and firme adhesion, which it hath with the thigh-bone, which is by some called *Crus*) from the space betweene the two Trochanters descends under the right muscle, and two vaste muscles into the fore part of the thigh, even to the whirle-bone of the knee. But we must note that these foure last muscles make a common thicke and broad tendon with which they couer the *Pateſſa*, or whirle-bone, and all the fore dearticulation of the knee, that they cannot be separated without tearing; wherefore we must thinke that this tendon, serves the knee for a ligament; now all these muscles performing their action together, extend the legge. The five hinder muscles follow to be spoken of, of which three arise from the tuberositie of the huckle-bone, going into the inner part; the fourth from the middle of the *Pubis*, called *Biceps*, that is, the two headed muscle into the outside of the legge. Of the internall, one passing frō the forementioned tuberositie, descends ligamentous even into the midst of the thigh, and then becoming fleshy, is inserted by its tendon, after the manner we formerly mentioned.

The three Internall.

The other being slender, passing forth also from the same place, with its tendon, is inserted with the tendon of the long muscle, and ends in the inner part of the legge, which with its companion, it drawes inwardly, and brings to the other, which same thing it performs in the thigh, by the helpe of the three headed muscle.

The third, being the inner, or hinder, descends from the middle part of the share-bone, with a broad and slender ligament, and is inserted with a round tendon, into the inner part of the legge after the manner of the fore-mentioned.

The fourth called *Biceps* takes one of the two heads, of which it consists, from the last mentioned tuberositie; the other from the outer line of the thigh, but is inserted into the externall part of the legge, as we formerly said.


The *Biceps*, or two-headed muscle.

The fifth and last called the *Popliteus* descends obliquely fleshy from the externall condyle or knot of the thigh, into the inner and hinder part of the legge, at the joyning thereof to the shinne-bone; the action thereof is, to draw the legge, after a manner inwards.

The *Popliteus* or ham muscle.

CHAP. XXXVIII.

Of the Bones of the Foote.

 The Order of Anatomy requires, that we now prosecute the muscles moving the foote; but because we should in vaine deliver their insertion, the disposition and condition of the bones of the foote, not being first known, wherefore it first behoves us, to set forth their description. Therefore the bones of the foote are fixe and twenty in number, distinguished into three ranks, that is, the bones of the *Tarsus* or Instep, are seven; these of the *Pedum*, the afterwrest, or backe of the foote, five, and those of the toes foureteene. Of the seven bones of the instep, there are 4. named, and 3. unnamed. The first of the named immediately following the bones of the legge, is called *Astragalus*, the pasterne, or ankle-bone. This hath three connexions, one, as we said before, in the upper and broader part with the bones of the legge, of which it is received; the other in the lower and hinder part, by which it receives the upper and inner processe of the bone of the heele; the third on the fore side by which it is received in the cavities of the *Os naviculare* or *Scaphoides*, that is, the boate-like-bone. By the first connexion the foote is extended and bended; by the second it is moved with the heele to the sides: the two first connexions are by *Diarthrosis*, the last by *Synarthrosis*. But it is strengthened by strong and broad ligments, descending, and ascending from one bone into another; also they are strengthened by membranes, muscles and tendons, descending to the foote, above and under these joints. But this bone hath 3. processes, as 3. seete fastened to the bone of the heele; of which the first and least is under the outer ankle; the bigger (which *Galen* saith, makes a round head, fastened on a long necke) looks towards the fore part of the foote, over against the great toe, and the next toe to it; the middlemost is at the heele, behinde the legge-bone.

Their number
The bones of
the Instep.

The *Astragalus*, its three connexions, and their use.

Its three processes.

The descrip-
tion of the
Calcaneum or
Calc.

Why a fra-
cture of the
heel is so dan-
gerous.
Hippocrates,
Sect. 3. lib. de
fracturis.

The *Os Scap-
phoides*, or
boate-like
bone.

The *Os Cuboi-
des* or Die-
bone.

The *Os in-
nominata*, or
namelesse
bones.

The bones
of the foote
or *Pedium*.

The bones of
the toes.

I passe over in silence many other things, as the smoothnesse and asperity or rough-
nesse of the bone, which I had rather you should learne by ocular inspection, than by
booke. The second bone lying under this is called the *Calcaneum*, or heele-bone, being
the biggest of all the bones of the foote, upon which all the body relies when we go.
It hath two upper processes, the one great, the other little. The great is received in
the hinde and outer processe of the *Astragalus*; the lesser is received on the inside in
the 3. processe of the same bone, which we said had a round head fastened to a long
neck. Besides, it is round on the hinde part, and much disioyned from the legge-bone,
but on the fore and longer part, it is knit by *Synarthrosis* to the Die-bone, whose lower
and inner part, it seemes to receive; the superficies thereof is wholly unequall, and
rising up with many swellings. On the inner side it makes as it were a channell, so to
give way, as well to the vessels as tendons going to the sole of the foote and toes.
Lastly, we must consider the holes by which the vessels passe into that bone to give it
nourishment; by reason of which vessels the fracture of this heele-bone, is very
dangerous, because of the pressing and contusion of the vessels, as *Hippocrates* shewes.
For the ligaments of this heele, or heele-bone they are such, as these of the *Astraga-
lus*, to wit, tendons, membranes and ligaments properly so called, comming from
one bone to another. The third bone of the foote is named *Scaphoides* or boate-
like, from the resemblance it hath to a boate, for on that part which lookes towards
the posterne bone, it is hollow; but on that part which is next the three *Innominata*,
or namelesse bones (which it sustaines, and of which it is received, as it in the cavity
thereof receives the head of the *Astragalus*) it is gibbous like the bottome of a boate.
The connexions thereof are by *Synarthrosis*, and they are strengthened by the fore-
mentioned ligaments; this same bone is arched on the upper part, but somewhat
hollowed or flatted below: the inner part ends in a point, like the prow of a ship, but
the outer obtuse like the sterne of a shippe. The fourth bone of these which have
names, is called the *Cuboides*, from the resemblance of a Die; although that simili-
tude be very obscure. On the fore part it sustaines the toes; which by a certaine pro-
portion to the fingers of the hand, may be called the Ring and little toes, but it is su-
stained on the hinde part, with the backe part of the heele; on the inner side it is joy-
ned with the boat-like-bone, and that namelesse bone which sustaines the middle toe;
on the outside, it produces a rising like the backe of an Asse, which on the lower part
is extended transversely all the length thereof; at the two sides of this eminency or ri-
sing, there are two small cavities, in the forme of a channell. The first and the greater
of the *Os innominata*, or namelesse bones, sustaines the great toe; the lesser and se-
cond, the next toe thereto; the third and middle in biguetle, the middle toe. These
three bones are arched on their upper part, but somewhat hollowed below. They are
knit to the three forementioned bones by *Synarthrosis*, of which they are received,
but on the hinde part with the boate-like bone which they receive. Now we must
come to the bones of the second ranke, that is, of the *Pedium*, or backe of the foote;
these are five in number, bearing up the five bone of the toes. They are somewhat
gibbous on their upper part, but hollow below; each of them hath two processes at
the end thereof, by the lower and first of which they receive the three namelesse and
Die-bone, but by the upper made into a round head, they are received of the first
bones of the toes. Their connexions, whether with the toes, or bones of the instep,
are by *Synarthrosis*. The ligaments as well proper as common are such, as we said of
the former. The bones of the third order now remaine to be spoken of, which wee
said, make the toes, and they are foureteene, two of the great toe, but three of each
of the other toes. The first is somewhat longish, but the rest are very short, ex-
cept that of the great toe, all of them on the upper side are round and convexe, but on
the lower somewhat hollow, and plaine long wise, that the tendons which bend
them, may passe more straightly and safely without inclining to either side, even to
their furthest joynts; although such passages are much helped by the membranous
and common ligament, which rising from the sides of these bones, involves these
tendons, as we mentioned in the fingers. To conclude, each of these bones the last ex-
cepted, have a double connexion by *Diarthrosis*, they are all unequall in their bignes,
that is, thicke at their beginning (where they receive the heads of the precedent
bones,

bones, upon which they move, as a doore upon the hinges) and so they grow smaller towards the ends, but by their ends, they are received of the following bones: at their ends they rise into two eminencies on their sides; distinguished by a cavity betweene them, through which occasion they are farre thicker at their ends, than in their middle.

The Figure of the bones of the Foote properly so called.

Figure 1. and 2. shew the bones of the right foote fastened together their upper face and their neather face.

Fig. 3, 4, 5, and 6, shew the upper, lower, inner and outer sides of the Talus or pasterne.

Fig. 7, 8, 9. sheweth the same sides of the Heele.

Fig. 10, and 11. sheweth the forward and backward side of the boate bone.

Fig. 12, and 13. shew the fore and back part of the wrest made of foure bones.



ABCD 3, 5, 6. The protuberation of the Talus joyned to the appendix of the leg-bone, and of this protuberation foure sides.

EE, 3, A sinus insculped in the protuberation of the Talus.

FF 3, two bunching parts of the Talus.

G 3, the inner side of the protuberation of the Talus crufted over with a gristle, joyned to the inner ankle.

H 6, The outward sinus of the protuberation of the Talus covered over with a gristle, and receiving the inner ankle.

I 3, A rough sinus of the Talus, receiving a gristly ligament from the inner ankle.

K 6, a sinus of the Talus receiving a gristly ligament from the outward ankle.

LM 5, 6, two sinus in the hinder part of the Talus.

N 3, 4, 5, 6, the necke of the Talus or pastern bone.

O 3, 4, 5, 6, the head of the Talus going under the sinus of the boate bone.

P 7, 8, 9, the head of the bone of the heele crufted over with a gristle, and going under the sinus of the Talus or the pasterne bone.

Q, 4, a large sinus of the Talus receiving the head of the heele.

R 7, 8, 9, a sinus of the heele whereto the lower part of the head of the Talus is joyned.

S 4, the lower part of the head of the Talus going into the sinus of the heele.

TT 4, a sharpe sinus of the heele receiving a gristly ligament from the pasterne bone.

XYZ 2, the place of the heele.

YZ 2, Y 8, Z 9, a proceffe of the heele made for the production of muscles.

X 4

ab 7.

a b 7 8, 9, from *a* to *b* the distance of the upper part of the heele. *e* 8, 9, the hinder part of the heele. *d* 2, 8, the inner side of the heele. *e* 8, the place where the tendons that run to the bottome of the foote are reflected. *f* 7 8, the utter side of the heele. *g* 1, 7, 9, here the tendons of the 7 and 8 muscles of the foote are stretched out. *h* 7, the forepart of the heele which is joyned to the pasterne bone. *i* 7, that part of the heele which is joyned to the Cube-bone. *k* 11, the *sinus* of the Boat-bone receiving the head of the *Talus*. *l m n* 10, three surfaces of the Boat-bone lightly prominent, which are articulated to the bones of the wrest. *o p* 11, the upper part of the Boat-bone regarding the top of the foot. *q r* 10, and *q* 11, his lower part. *q* 10, 11, A *sinus* through which the first muscle of the foote is led. *s t u* 13, the plain surfaces of the three inner bones of the wrest whereby they are articulated to the Boat-bone. *x* 13, a shallow *sinus* of the Cube-bone whereby it is articulated to the heele, *a^β* 12, the place of the Cube bone to which that bone of the Afterwrest is joyned which supporteth the last Toe save one. *γ* 12, 13, the place of the Cube bone where the third bone of the wrest is articulated. *δ* 12, 13, that part of the Cube bone which respecteth the outside of the foote. *ε* 12, 13, the surface of the Cube-bone in the upper part of the foote. *ζ* 2, 13, that part of the Cube bone which regardeth the earth. *η* 2, a *sinus* of the Cube bone at which the tendon of the seventh muscle of the foot is reflected. *B* 13, a proceffe of the third bone of the wrest wherein to the first muscle of the foot is inserted. *Γ* 12, the place of the inner bone of the wrest to which that bone of the Afterwrest which sustaineth the great Toe is coupled. *κ* 12, the place of the second bone of the wrest whereto the bone of the Afterwrest that supporteth the fore Toe is articulated. *Λ* 12, the place of the third bone of the wrest whereto that bone of the Afterwrest which supporteth the middle toe is articulated. *μ* 1, 2, a small bone whereby that bone of the Afterwrest which sustaineth the little toe is joyned unto the Cube bone. *ν* 1, 2, the distances betwixt the bones of the Afterwrest. *ξ* 1, 2, the heads of the bones of the Afterwrest which enter into the besomes of the toes. *π* 2, a proceffe of the bone of the afterwrest wherein the tendon of the seventh muscle of the foote is implanted. *ρ* 2, a proceffe of the Bone of the Afterwrest, which sustaineth the little toe, which proceffe receiveth the tendon of the eighth muscle of the foote. *ς, γ, υ* 1, 2, the three bones of the foretoe. *ϕ, ω* 2, two seede bones placed under that bone of the afterwrest which sustaineth the great toe, *ϑ* 2 under *X*, a seede bone set to the second joynt of the great Toe. *Γ* 1, 2, the *Talus* or pasterne. *Δ* 1, 2, the Heele. *Θ* 1, 2, the Boat-bone. *Α, Ξ* 1, 2, the bones of the toes. *Φ, Χ* 1, 2, two bones of the great toe I, II, III, IV, V, I. the five bones of the afterwrest.

The Seed-bones of the foote:

The twofold use of the seete.

The Ligaments by which their connexions are fastened, are such as the former; The *Ossa sesamoidea* or Seed-bones of the feet are like in number and site to these of the hands. But this is to be noted, that those Seed-bones which are in the first articulation are somewhat bigger than the rest, and they are round and longish on the out side, but smooth and hollow on the inside, seated between two cavities, encompassed by three risings, of which two are on the sides, and the third in the midst of the extremity of the first bone of the *Podium*, which chiefly beares up the great toe. To conclude, before we come to speake of the muscles, we must observe that the foote was made for two commodities. The first is to stay and beare the whole body when we stand, for which cause nature set not the great toe contrary to the other, as it placed the Thumbe on the hand. The other is for apprehension, or taking hold of, wherefore nature framed and made the foote and these moveable and joyned in the toes, as in the fingers of the hand. Besides also for that we must goe upon our feet, Nature hath made them in some places hollow on the lower side, & in other some plaine in a triangular figure, that so our feet may carry us over every soile, plaine mountainous, equall and unequall, through all parts of the world.

CHAP. XXXIX.

Of the Muscles moving the foote.

THe muscles of the Legge moving the foote are absolutely nine, three in the fore part and sixe in the hinde. Two of the three fore muscles bend the foote, when they joyntly performe their action, but when severally, each drawes it to his side; the third chiefly extends the Toes, for other whiles it seemes by its slenderer and longer Tendon (which exceeds not that bone of the *Pedium* which susteines the litle Toe) to helpe also to bend the foote.

The first is called *Peroneus*, because it descends alongst the bone *Perone*; the other the *Tibialis anticus*, for that it descends along the *Os Tibia*, or bone of the Legge. The third from its action is called the *Digitumtensor*, or Toe-stretcher. For their originall the *Peroneus* which seemes to have two heads, descends from the upper appendix of the *Perone* or shin bone by its first head, but by the other from the middle of the same bone from the fore side into the hinde, as the superficies shewes which passes betweene the fore and outward line of the said bone; but after it arives at the lower and hinder appendix of the same bone, behind the outer Anckle it produces two tendons, which by the guidance of the Ligaments as well proper, as common, goe, the thicker under the sole of the foote, ending in the Die-bone and that bone of the *Pedium* which susteines the great Toe; the lesser goes on the outside to the Die-bone, & the last & least bone of the *Pedium* which beares up the litle Toe, sometimes a slender portion thereof is produced even to the side of the litle Toe, extending it and drawing it from the rest. The *Tibialis anticus* or Fore legge muscle proceeding from the upper and outer appendix of the Leg-bone descends above the surface of the same bone, which is betweene the fore and outer line to which it adheres, as also to that surface even to the midst, from which place it produces one tendon, which descending on the fore and lowest part, ends on the outside into two of the nameles bones, that is, into the first which is the thicker, and into the middlemost, but besides by a slender portion thereof it is extended into the first and greater bone of the *Pedium*, so to extend the great Toe, drawing it inwards to the other foote. And this muscle with the precedent bends the foote, if they both performe their parts at once; but if severally, each drawes the foote towards his side. The third which is the *Digitumtensor*, or Toe-stretcher, is two fold; the one takes its originall from the top of the Legge, and running alongst the shin-bone and passing under the ring, carries it selfe into the foote, in which it ends by five tendons going to all the joynts of the Toes, and by a sixth at that bone of the *Pedium* which susteines the litle Toe, whereby (as wee formerly said) it helpes the bending of the foote. The other descends into the midst of the shin-bone, and somewhat fastened thereto by one tendon passing under the Ring it goes to the great Toe. But you must note that all these Tendons have nervous, ligamentous and fleshy fibers so separated from each other, that they can equally alone performe their function, as if they were more distinct muscles. And wee must thinke the same of the rest which have distinct Tendons presently from their fleshy part.

The sixe hinde muscles follow, of which the two first are called the *Gemelli* or Twins by reason of the similitude of their thicknesse, originall, insertion and action. The third is called the *Plantaris*, because it is spent upon the sole of the foot, as the *Palmaris* upon the palme of the hand. The fourth is termed the *Soleus* or sole muscle by reason of the resemblance it hath to the fish of that name. The fift the *Tibialis posticus* or hindlegge Muscle which descends alongst the backe part of the leg-bone. The sixth and last the *Digitumflexor* or Toe-bender, equivalent to the Deepe muscle of the hand, some make but one muscle of this and the *Tibialis posticus*, which produces three tendons; others had rather make three, as thus, that one should be the *Tibialis*, the other the bender of foure Toes, the third the bender of the great Toe.

Now for the two *Gemelli* or Twins, the one is internall, the other externall; the internall passes forth from the roote of the inner Condyle of the Thigh; but the externall

Their number.

Musculi Peronei.

Tibialis anticus.

The Toe-stretcher is two fold.

The 6 hinde muscles.

The 2 Gemelli or Twins muscles.

In what place
the kibes breed

externall from the externall Condyle; and from this their originall presently becoming fleshy, especially on the out side, they meet together a litle after in their fleshy parts, and with the *soleus* they make the thicke and great Tendon at the midst of the legge, which from thence is inserted into the backe part of the heele; in this very Tendon breed painfull kibes. The action thereof is, to helpe our going by putting forth the foote, whilst it drawes the Heele towards its originall.

The *Plantaris*

The *Plantaris* the least and slenderest of them all, passes forth fleshy from the outward head of the legge-bone, and from thence the space of some foure fingers bredth it ends in a strong and slender Tendon, which it sends betweene the *Twin* and sole muscles to the sole of the foot, there to produce a membrane which covers the sole of the foote, and a muscle equivalent to the upper bender of the Hand.

The *Soleus*.

The *Soleus*, or sole muscle the thickest of them all, and seated under the *Twin* muscles, descends from the commissure of the legge and shin-bones, and about the midst of the legge, after it hath mixed his tendon with that of the *Twin* muscles, it runs into the foresaid place that it may extend the foote for the foresaid use,

The *Tibialis*
posticus.

The *Tibialis posticus* descends from the hinder appendix of the legge and shinbones, and adhering, to them almost as fare as they goe, by a strong Tendon, being as it were bony at the end thereof, it is inserted into the Boat-like bone and the two first names bones so to helpe the oblique extension of the foote.

The *Digitum*
flexor two-
fold.

The last being the *Digitum flexor* or Toe-bender is twofold, for one arises from the legge-bone, in that place where the *Popliteus* ends, and inserted into that same bone it goes even to the backside of the inner ankle & from thence into the joynts of foure of the toes. The other drawes his originall from almost the middle of the shin-bone, and somewhat inserted into it, it goes by the heele and pasterne bone to the great toe, mixed with the precedent; their action is to bend the first joynt of the Toes, rather by the force of the common Ligament, than by the small portion of the Tendon which ends there. But it is their action to bend the last dearticulation of the Toes by their proper insertion.

CHAP. XL.

Of the Muscles moving the Toes of the feete.

Their number.



Now follow the muscles moving the Toes; these are eight in number, one on the upper, and seven on the lower side. The first proceeds from the Pasterne, heele and Dic bones below the externall Ankle, or the Ligament of these bones with the Legge-bone, and obliquely stretched to the top of the foote is parted into five small tendons to

The *Abductor*
of the Toes, or
Pediosus.

the sides of the five toes, so to draw them outwards towards its originall, whereupon it is called the *Abductor* of the Toes, and also *Pediosus*, because it is stretched over the *Pedium*, or backe of the foote.

The *Flexor*
superior.

The first of the seven of the lower side called the *flexor superior* or upper bender, arises from the heele and stretched alongst the foote under the strong membrane, (which from the heele is straitly fastened to the extremity of the bones of the *Pedium* to strengthen the parts contained under it) is inserted by foure Tendons, at the second joints of the foure Toes which it bendes. Here you must note that neer the insertion thereof, this muscle divides it selfe, like that muscle of the hand which is called *sublimis*, that so it may give way to the Deepe, which (as we said) descends alongst the fingers, to which a certaine common membranous Ligament adjoynes it selfe, which involues and fastens it to the bone all alongst the lower part of the fingers, even to the last dearticulation.

The muscle
equivalent to
the *Thenar*.

The second equivalent to that muscle of the hand which is called *Thenar*, seated on the inner side of the foote, arises from the inner and hollow part of the heele and pasterne bones and ends in the side, and inner part of the great Toe, which it drawes from the rest, inwards. This may be divided into two or three muscles, as the *Thenar* of the hand, to draw the great Toe to the rest, as much as need requires, just as we said of the Hand. The third answerable to that of the hand which is named the *Hypothenar*, passes from the outer part of the heele and ascending by the sides of the foote it is in like manner inserted into the side of the litle Toe, so to draw it from the rest;

to which same action a certaine flesh contained under the sole of the feete may serve, which is stretched even to these Toes, that also it may serve to hollow the foote. The foure *Lumbrici* or wormy muscles follow next, which from the membrane of the Deep Toe-bender are inserted into the inner & side part of the foure Toes, so to draw them inwards, by a motion contrary to that which is performed by the *Pediosus*. The *Interosses* or bone-bound muscles of the *Pedium* or back of the foot, remaine to be spoken of: These are eight in number, foure above, and as many below, different in their originall, insertion and action; for the upper because they draw the foote outwards with the *pediosus*, arise from the fore and inner part of that bone of the *pedium*, which beares up the litle Toe (and so also the rest each in its order) and are inserted into the outward & forepart of the following bone. The lower on the contrary passe from the fore and outer part of that bone of the *pedium*, which beares up the Great Toe (and so each of the rest in its order,) but are inserted into the inner and upper part of the following bone, so with the wormy muscles to draw it inwards, or to hollow the foote as the outwards, or to flat the foote, as we said of the *Interosses* of the hand.

The 4 *Lumbrici*.

The description of the upper and lower *Interosses*.

CHAP. XLI.

An Epitome or brieve recitall of the bones in a mans body:

H He whole head which hath the least consists of 60. bones; but that which hath most of 63. that is, 14 of the *Cranium* or scull, 14 or 17. of the face, and 32 teeth; Of the bones of the scull there be 8 containing and fixe contained; the

The bones of the Scull, 14.

This first sheweth the forepart of the Sceleton of a man, &c.



The Declaration of these three figures put into one.

A 3. The Coronall Suture called in Greeke *σφαιραια*.

B 2 3. The suture like the letter Λ called *λαμδαιδης*.

C 2. The sagittall Suture called *ὄβελος*.

D 2, 3. The scale-like Conjunction called *λεπιδαιδης*.

a. 2, 3, *Os verticis*, or *synsippius*, the bone of the *Synsippus*, called *ὀσ βρεγματις*.

β. 1, 3. The forehead-bone, that is, *μετωπον*.

γ. 2, 3. The bone of the Nowle or *iris*.

δ. 2, 3. The bones of the temples or *κρανια*.

ε. 3. An appendix in the temple-bone like a Bodkin, called *σφυραιδης*.

ζ. 1, 2, 3. A proesse in the temple-bone like the teate of a dugged, called therefore *Mamillaris* & *μαστοιδης*.

η. 2, 3. the wedge-bone, called *σφηνοειδης*.

θ. 3, the stony part of the Scull.

ι. 3, a proesse of the wedge-bone much like the wing of a Bat, and therefore called *πτερυγιδης*.

F, 1,

The 2 and 3 Figures sheweth the backside of the Sceleton.
and the laterall part of the Sceleton.



F, 1, 2, 3. the yoke-bone ζυγωμα. G 1, 3. the lower jaw. I, K, L, M, N, 1, 2, 3. the backe or the spine, ραχίς. From I to K, the Necke, σπονδυλα. From K to L, the Rackebones of the Chest. From L to M, the rackebones of the Loynes. From M to N, the Holy-bone, ισχον. N, the Rumpe bone, κόκκυξ. O, 1, 3. the brest-bone, στήθον. P, 1, 3. the Sword-like gristle of the brest, ξιφοειδής Char. 1, 2, 3, as farre as to 12. in all three Tables, shew the twelve ribs of the Chest πλευράι. Q 1, the clavicles or collar bones, κλειδες. R, 1, 2, 3 the shoulder-blade, ομοπλάτης. A, 1, 2, 3, the upper proceffe of the shoulder-blade, or the top of the shoulder, called ἀκρομήμιον. V, 1, 3, The lower proceffe of the shoulder-blade: called ἀγκυροειδής. S, 1, 2, the bone of the arme, called *Humerus* and βραχίον. T, V, 1, 2, 3, the Cubit πῦχος. X, 1, 2, 3: the wand or the upper bone of the Cubit, called καρκίς. Y, 1, 2, 3, the ell or lower bone of the Cubit, called πῦχος. γ, 3, the proceffe of the Cubit, ὠλέκρανον. Ξ, 1, 3, the proceffe like a bodkin or probe, called εὐλαοειδής. ZZ: 1, 2, 3, the wrest καρπός. ΓΓ, 1, 3, the after-wrest μελανόσπον. ΔΔΔ. I, the fingers δακτύλοι. Θ, 1, 2, 3, the bones joyned to the sides of the Holy bone, on each side, distinguished as it were into three parts. ο, 1, 2, 3, the first part called the Hanch-bone, *Os Ilium*, λαγύρα. π, 1, 2, 3, the second part the bone of the *Coxendix* ισχίον. ς, 1, 2, 3, the third part the share-bone, *Os pubis*, ἴβαν. σ, 1, 2, 3, a gristle going betweene the conjunction of the share-bones. Λ, 1, 2, 3, the thigh, μηρ. τ, 1, 2, 3, the greater outward proceffe of the thigh called *Rotator* περιστάτης μέγας. υ, 1, 2, 3, his lesser

lesser and inner proceffe. Ξ , 1, 2, 3, the whirlebone of the knee, *Patella Rotunda*, ἐπικυλιν. Π , Σ , 1, 2, 3, the leg, *ἰνὴ μὲν*, Φ , 1, 2, 3, the inner & greater bone of the leg *περὶ ἄρην μὲν*, Ψ , 1, 2, 3, the utter and smaller bone of the leg, called the *Brace-bone*, *Fibula*, *περὶ ὀνὴ μὲν*, Φ , 1, 2, 3, the proceffe of the Leg or the inner ankle called *Malleolus internus*. X , 1, 2, the proceffe of the brace of the out-ward ankle, both of them are called in greeke, *σφυλὸν*. Ω , 1, 2, 3, the bone called the cockal, *Talus*, *balista*, *Os ἀσπὶ γαλ.* α , 2, the Heele *Calc*, *πέδιον*. β , 1, 3, the bone called *Os Naviculare*, *καρπιδὲς*. ϵ , 1, 2, 3, the wreat of the foot called *Tarsus*, consisting of foure bones, *περὶ δὲ*. δ , ϵ , f , 1, 2, 3, three inner bones of the wreat of the foot, called by some *χάλκοις*. g , 1, 2, 3, the utter bone of the wreat of the foot like a Dye, *κυκοίς*. h , 1, 2, 3, the afterwreat of the foote called *Pedium*, by some *μεταταρσ.* i , 1, 2, 3, the toes of the foote. k , 1, 2, 3, the seed bones of the foote, called *oscula sesamina*, *σπασμοίς*.

This figure sheweth the Sekeleton of the bones & gristles of a woman, that it may appeare all her bones are in proportion lesser than the bones of a man. But in this figure onely those parts are marked with letters wherein a woman differeth from a man in her bones and gristles.



- A, The sagittall suture descending into the nose, & dividing the fore head bone, which is sometimes found in women, very rarely in men, but alwayes in Infants.
- BB, the Chest somewhat depressed before, because of the Paps.
- CC, the collar bones not so much crooked as in men, nor intorted so much upward.
- D, the brest-bone perforated sometimes with a hole much like the forme of a heart, through which veines do run outward, from the mammary veines unto the paps.
- E, the gristles of the ribs, which in women are somewhat bony, because of the weight of the Dugs.
- F, a part of the backe reflected, or bent backward above the loynes.
- GG, the compasse of the hanch-bones running more outward, for the wombe to rest upon, when a woman is with child.
- HH, the lower proceffes of the share-bones, bearing outward that the cavity marked with K, might be the larger.
- I, the anterior commissure or conjunction of the share-bones filled up with a thicke gristle, that in the birth they might better yeeld somewhat for Natures necessity.

K, A great and large cavity circumscribed by the bones of the coxendix and the Holy-bone. L, The Rumpe or Coccyx, curved backward to give way in the time of the birth. M, the thigh bones by reason of the largeness of the foresaid cavity, have a greater distance betwixt them above, whence also it is that womens thighs are thicker than mens.

containing are, the *Os frontis*, or Forehead bone, the Nowle-bone, the two bones of the *Synsput*, the two stony bones, the Wedgebone, and the Sive-like or spongy-bone. But the contained are fixe shut up in the cavity of the Eares, the Anvile, Hammer and stirrop.

The bones of
the face 15.

For the bones of the face, there are six within or about the Orbe of the Eye, that is, on each side three; two bones of the Nose, two lesser Jaw bones, and two bigger, which are alwayes in beasts scene distinguished by a manifest difference, but it is so rare in men, that I have not found it as yet; therefore these onely are distinguished by manifest difference, two which containe all the upper teeth, the two inner of the palate, the two of the lower Jaw in children; And last of all the *Os Crista*, whence the middle gristle or partition of the nose arise.

The teeth 32.

The two and thirty teeth are equally distributed in the upper and lower Jawes; and of these there be eight shearers, foure fanges, or Dog-teeth, and twenty Grinders.

The bone
Hyoides

And there is another bone at the roote of the tongue called *Os Hyoides*, alwayes composed of three bones, sometimes of foure.

The bones of
the spine 34.

Now follow the bones of the Spine, or Back-bone, which are just foure and thirty, that is, seven of the necke, twelve of the Chest, five of the loines, six of the holy-bone; and foure of the rumpe. Besides there are two bones of the throate, or Collar bones.

2 Collers
bones.
The Ribs 24.
The bones of
the Sternon 3.

The Ribbes are twenty foure, that is, fourteene true and ten bastard ribs. The bones of the *Sternon* or Breast-bone most frequently three, other whiles seven, as sometimes in young bodyes.

The bones of
the whole
arme 62.

Hence comming to the Armes there are reckoned 62, beginning with the shoulder-blade; as there are two shoulder-blades; two Arme bones; foure bones of the Cubite; that is, two Ell-bones and two Wands; sixteene of the Wrest, eight of the Afterwrest, and thirty of the fingers: into this number also come the *Sesamoidea*, or seedbones, of which some are internall, & these alwayes twelve at the least, although somtimes there may be more found, a great part of which rather merite the name of Gristles, than bones; there are others externall if we beleeeve *Sylvius*.

The bones of
the whole leg.
66.

Now remaine the bones of the Leg, which (if we reckon the *Ossa Ilium* on each side three, as in yong bodies, it is fit they should) they are sixty six, besides the seed-bones, that is to say, two Haunch-bones, two share bones, two Huckle-bones, two thigh-bones, two Whirlbones of the knees, foure of the leg, that is two leg-bones, and two shin-bones. Fourteen of the Instep, as two heele, two pasterne, two boat-like, two Die, & six namelesse bones. Ten of the *Pedium* or back of the foote, that is, five in each foot; & twenty eight of the Toes: & as many seed-bones in the feet, as the hands enjoy. But I have thought good to adde these figures for the better understanding of what hath beene spoken hereof.

CHAP. XLII.

An Epitome of the names and kinds of composure of the bones.

What the
Sceletos is.

The bones are
composed two
manner of
wayes.

2. Sorts of Art
tication.

What *Diart
hrosis* and
Synarthrosis
are.

3. Sorts of *Dis
arthrosis*.

What *Enar
throsis* is.

BEcause it is as neceessary for a Chirurgion to know the manner of setting & repairing broken bones, as to put them in their places when they are dislocated, or out of joynt; but seeing neither of them can be understood when the naturall connexion of the bones is not knowne, I have thought it a worke worth my labour, breifly to set downe, by what and how many means the bones are mutually knit and fastened together. The universall composure and structure of all the bones in a mans body is called, by the Greekes, *Sceletos*. But all these bones are composed after two sorts, that is, by *Arthron*, an Articulation or joynt, and by *Symphysis* a naturall uniting or joyning together. There are many other kinds of both these sorts. For there are two kinds of Articulation, that is *Diarthrosis* or Dearticulation, and *Synarthrosis*, or Coarticulation; which differ as thus, Dearticulation is a composition of the bones with a manifest and visible motion; Coarticulation hath a motion of the bones, yet not so manifest, but more obscure. But these two do again admit a subdivision into other kinds. For *Diarthrosis* containes under it *Enarthrosis*, *Arthrodia* & *Ginglymos*. Now *Enarthrosis* or Inarticulation is a kind of Dearticulation, in which a deep

Cavity

Cavity receives a thicke and long head, such a composition hath the Thigh-bone with the Huckle-bone.

Arthrodia is when a lightly engraven civity admits a small and short head, such a connexion is that of the Arme-bone with the shoulder-blade; of the first *Vertebra* with the second. The Greekes have distinguished by proper names these two kinds of Cavities and heads; For they call the thicke and long head *Cephale*, that is, a Head absolutely; but the lesser they terme *Corone*, or *Coronon* which the Latines call *Capitulum*, a Little-head. But they call a deepe Cavity *Cotyle*, and a superficially one *Glene*. The third sort called *Ginglymos*, is when the bones mutually receive and are received one of another; as when there is a cavity in one bone, which receives the head of the opposite bone, and also the same bone hath a head which may be received in the Cavity of the opposite bone; such a composure is in the Cubite and knee, that is in the connexion of the Thigh-bone.

And thus much of Dearticulation and the three kinds thereof. *Synarthrosis* or Coarticulation, another kinde of juncture, hath also three kinds thereof (*Gal. lib. de Ossibus*) to wit, *Sutura*, *Gomphosis* and *Harmania*.

Suture is a composition of the bones after the manner of sowing things together, example whereof appeares in the bones of the Scull. *Gomphosis* is when one bone is fastened in another as a pin is fastened in a hole, after which manner the teeth are fastened in their sockets in both the Jawes. *Harmony* is when the bones are composd by the interposition of a simple line, after which manner many bones of the nose and face are joynd together.

Hitherto we have spoken of the first construction of the bones by articulation and the kinds thereof; now it followes we treat of *Symphysis*.

Symphysis, or Growing together as we formerly said, is nothing else, than naturall union of the bones; such union is made two manner of wayes, that is, either by interposition of no other thing; after which sort in succeſſe of time the bones of the lower law grow together, which formerly in children were manifestly distinguished; or by the mediation of some *Medium*; but that happens three manner of wayes, by interposition of three severall *Media*, as first of a Gristle, which kinde of union the Greekes call *Synchondrosis*, after which manner the Share-bones grow together and also some *Appendices* in young bodyes; secondly of a Ligament, and it is named by the Grecians *Syneurosis*, the name of a Nerve being taken in the largest sense, for sometimes it is used for a tendon, otherwhiles for a Ligament, otherwhiles for a Nerve properly so called and which is the author of sense and motion. But this *Symphysis* or union hath place by *Syneurosis*, or interposition of a Nerve in certaine bones of the *Sternon* and Haunch.

Thirdly, the bones grow into one by interposition of flesh, called in Greeke *Synsarcoſis*; thus the flesh of the Gums fastens the teeth and makes them immoveable. But if some be lesse pleased with this division, by reason of the obscurities, in which it seemes to be involved, this following expression comes into my minde, which I was first admonished of by *German Cortin* Doctor of Physicke, which if you well observe it, is both blamelesse and more easie for your understanding.

What *Arthro-*
dia is.

What *Cephale*
is.

What *Corone*
is.

What *Cotyle* is.

What *Glene* is.

What *Gingly-*
mos is.

3 Kinds of
Synarthrosis.

What a *Suture*
is.

What *Gom-*
phosis is.

What *Har-*
mania is.

What *Symphysis*
is.

Synchondrosis.

Syneurosis.

The things
signified by
word *Nerve*.
Synsarcoſis.

The bones, which as pillars susteine the fabricke of the whole body, are either,

or Conjoynd by that which they call *Arthrodia*, or Articulation, as when they so concur & are bound together, that some Heterogeneous substance may be noted betwixt them, but the bones thus composed are knit two manner of wayes, that is,

either more loosely as by *Diarthrosis*, that is a kind of Articulation not very strait, as by which it might have opportunity to preforme diverse motions: of this composure or Articulation of bones there are three kinds, as

or more straitly, as by *synarthrosis*, where the bones are more straitly knit so that they can performe no motions in the body. Of this Articulation there are also 3, kinds, that is

Enarthrosis, when the head of a bone is wholly received in the cavity of another, & hid therein, as the Thigh-bone is joynd with the Huckle-bone.

Arthrodia, when in a lightly engraven & not much depressed cavity, the head of another bone is not wholly hid, but only received in part thereof; so that unless nature had otherwise provided a sufficient receptacle for the head of this bone (as by the ligaments of the neighbouring Muscles) it would otherwise have bin in perpetuall danger of dislocation. Thus the Arme-bone is fastened to the shoulder-blade.

Gynglymos, when the bones mutually receive each other, such like composition hath the Cubit and Arme-bone.

Gomphysis, as when one bone so receives another as a Pin is fastened in the hole made by a peircer, thus the teeth are fastened in the Jawes.

Sutura, like a Saw, or teeth of a combe, as the bones of the scul are mutually knit together, or as scales, or tiles are laid, after which manner the stony bones are fastened to these of the *Synsiphia*. *Harmonia*, which is by interposition of a simple line, which parts bones abutting one upon another, as the bones of the Nose.

An Epitome or brieve recitall of all the Muscles of mans body.

As I have formerly reckoned up the bones, so here I have decreed to recite the muscles of mans body. Wherefore in the face we first meet with the broad or skin muscle, arising from the fleshy pannicle, & covering the whole necke & almost all the face. Then follow 4, pertaining to the upper eye-lids. In the Orbs of the eyes lye 14, that is 7, in each Orbe, of which 4 are called right, two oblique and one pyramidall. Then succeed 4 of the nose, two externall on each side one, and two internall, these draw it together and the other open it. After these come the ten muscles of the lower Jaw, of which two are called the *Crotaphitiæ* or Temporall; two *Masseteres* or Grinders; two round (which seeme to me rather to pertaine to the lips, than to this Jaw;) two litle ones hid in the mouth, arising from the winged proesse of the wedge-bone; two openers of the mouth being nervous or tendinous in their midst. Then follow the 8 muscles of the lips, that is, 4 of the upper and as many of the lower, shutting and opening the mouth. The tongue with his ten muscles is hid as it were in the den of the mouth. Wherefore the muscles of the whole face are 51. In the fore part of the neck are found the muscles of the bone *Hyoides* & throtle; now 8 muscles hold the bone *Hyoides* as equally ballanced; of which there are 2 upper arising from the Chin; 2 on the sides from the proesse *Styloides* perforated in their midst, through which the 2 openers of the mouth in that part nervous do passe; 2 arise from the *Sternō*, & lastly 2 from the upper rib of the shoulder-blade to the *Coracoides*, which also in their midst are nervous, in which place the two *Massoidei* lye upon them.

The

The Throate composed of three gristles hath eightene or twenty muscles, of which sixe or eight are common, and twelue proper; Of the common there are two above, two below, and two at the sides of the first gristle, to which wee may adde these two which serve for the opening of the *Epiglottis*, which are alwayes found in great foure footed beasts for to presse downe the *Epiglottis*.

The 13. of the
Larynx.

The proper are twelue which almost all of them come from the second gristle, so to be inserted into the first and third, of which some are before, others behinde the *Thyroides*. Besides these, there are the *Mastoidei* which bend the head.

The head is
moued by 14.
Muscles.

But in the backe part of the Necke there are twelue muscles also appointed for to move the head, so that in all there are fourteene muscles serving for the motion of the head, the two fore *Mastoidei*, and the twelue hinde Muscles, that is to say, the two *Splenij*, two *Complexi*, foure Right, and so many oblique which are very shorr, so that they passe not beyond the first and second *Vertebra*.

The 8. Muscles
of the necke.

The Necke hath eight Muscles, of which two are called the long, lying before upon the bodyes of the *Vertebra*; the two *Scaleni* which are at the sides; the two *Spinati* which runne alongst the Spine; the two transverse which goe to the transverse processes of the Chest.

The Muscles
of the chest 18.

The Chest hath 81 Muscles, of which some are on the fore part, some on the hinde, others on the sides; they are all combined or coupled together except the Midriffe. Now of these there are the two *Subclavij*; the two great Saw-muscles which proceed from the basis of the shoulder-blade; the foure litle *Rhomboides* or square muscles, that is, two above and two below; the two *Sacro-lumbi*; the two binders of the Gristles within the Chest:

Besides there are twenty and two externall and as many internall Intercoastall muscles; twenty foure *Intercartilaginei*, that is, twelue externall and as many internall; so that the Intercoastall, and *Intercartilaginei* are 68, which with the twelue before mentioned make the number of 80 Muscles. Adde to these the Midriffe being without an associate, and you shall have the number formerly mentioned; to wit, 81. But also if you will adde to these the Muscles of the lower belly, I will not much gainsay it, because by accident they helpe inspiration and expir-
ation.

The 8. muscles
of the lower
belly.

Wherefore of the eight muscles of the *Epigastrium*, there are foure Oblique, of which two are descendent and so many ascendent; two right, to which you may adde the two Assisting or Pyramidall muscles which come from the share-bone, if it please you to separate them from the head of the right muscles:

The 6. or 8. of
the loines.

There are sixe or eight Muscles of the Loynes, of which two bend the loines which are the triangular; the two *Semispinati*; two *Sacri*; two are in the midst of the backe, which for that cause we may call the *Rachite* or Chirre-muscles. Now, that hereafter we may severally and distinctly set downe the muscles of the extreme parts, will we come to the privities.

The two Cre-
masters of the
Testicles.

Where for the use of the Testicles there are two Muscles called the *Cremasteres*, or Hanging Muscles. At the roote of the yard, or *Perinaum*, there are foure others, partly for the commodious passing of the urine and seed, and partly for erecting the yarde. The *Sphincter* Muscle is seated at the Necke of the Bladder.

The three of
the fundamen-
te.

At the end of the right Gut are three Muscles, two *Levatores Ani*, or Lifters up of the fundament, and one *Sphincter* or shutting Muscle. Now let us prosecute the Muscles of the Extremities, or Limbs. But it will be sufficient to mention onely the Muscles of one side, because seeing these parts of the body are double, those things which are said of the one may be applyed to the other.

Wherefore the muscles of the Arme, beginning with these of the shoulder-blade, at the least, are 42. for there are 4 of the shoulder-blade: of the Arme properly or particularly so called, seven or eight; and there are three, foure, or five proper muscles of the Cubite, that is, appointed for the performance of the motions thereof; in the inner part of the Cubite are seven, and as many in the outer; but those of the hand are reckoned thirteene at the least.

The muscles
of the Arme in
generall 32.

The fourth of the shoulder-blade are the *Trapezius* resembling a Monkes Cowle, which moves it upwards and downewards, and drawes it backwards; the second is the *Levator*, or Lifter-up; the third the great *Rhomboides* lying under the *Trapezius*. The fourth, the lesser saw muscle which is inserted into the *Coracoïdes*. The arme is moved forwards, backwards, upwards, downewards and circularly.

The Pectorall muscle arising from the Clavicle, Breast-bone and neighbouring ribs, drawes it forwards; the *Humilis* or low-muscle comming from the lower rib of the shoulder-blade drawes it backwards; the *Deltoides* upwards; and the *Latissimus* downewards, and somewhat backewards. But the three seated about the shoulder-blade move it about; or circularly.

The *Epomis* or *Scapularis* upwards; the *Super-scapularis*, which may seeme two, backwards and downewards; the *Subscapularis* which is in the Cavities of the shoulder blade, forewards, so that by a certaine vicissitude and succession of action they move it circularly. Two muscles bend the Cubite; the one named *Biceps* or Two-headed, and the other *Brachialis* or the Arme-muscle; but one, two, or three muscles extend it; for if you have respect to the originall, this muscle hath two or three heads, but one onely insertion.

In the inside of the Cubite are seven muscles, one *Palmaris*, two wrest-benders; two *pronatores*, one square, another in some sort round; two finger-benders, and one *Abductor* or Drawer aside. These fourteene internall and externall muscles of the Cubite, doe not indeed move the Cubite, but onely seated there move the wande and with it the hand. These are the thirteene Muscles of the hand; the *Thenar* which may not only be divided into two, but into sixe, not only by the diverse actions it performes, but also by the branches divided by a manifest space betweene them; the second is called the *Hypothenar*, which lyes under the litle finger, as the *Thenar* doth under the Thumbe; the third is the *Abductor* of the Thumbe; then follow the foure *Lumbrici* and sixe *Interosses*, although eight may be observed.

The muscles
of the legge in
generall 50.

The whole Legge hath at the least 50. Muscles, for wee reckon there are fourteene muscles in the thigh; there are eleven made for the use of the Legge; there are nine seated in the Legge, three before and sixe behinde which serve for the use of the foot and toes; in the foote are seated sixteene. Therefore of the foureteene muscles serving the thigh two bend it, one called the *Lumbaris*, the other arising from the cavity of the Hanch-bone; but the three which make the Buttocks and the *Triceps* or Three-headed muscle, (which if you please, you may divide into three) extend it. Besides these the 4. twin muscles, and two *Obturator*s, of which the one is internall, the other externall, turne the Thigh about. The Legge hath eleven, that is, the Long, the Membranous, the foure *Postici* or Hinde muscles (three of which come from the Huckle-bone, but the other from the commissure of the Share-bone) the Right, the two *Vastæ*, the *Crureus* or Legge-muscle, and the *Popliteus*, or Ham-muscle. These seated in the leg for the use of the foote and toes are three fore and sixe hinde muscles: two of the fore bend the foote, one of which is called the *Tibialis anticus*, the other *Peroneus*, which you may divide into two. The third the bender of the toes, although it also partly bend the foote, to which also the bender of the Thumbe may be revoked. One of the hinde is the Toe-bender, others extend the foote, and are in this order; Two twins, one *Plantaris*, one *Soleus*, one *Tibialis posticus* and the great bender of the Toes, to which may be revoked the bender of the Thumbe. Of the sixteene seated in the foote, one is above, seated on the backe of the foote, which wee call the *Abductor* of the Toes; another in the sole of the foote, to wit, the litle bender of the Toes, which goes to the second joynte of the Toes alongst the inside of the foote; the other lends his helpe to the great Toe, which you may call the *Abductor* of the Thumbe; another is seated on the outside for the use of the litle Toe. To these are added the foure *Lumbrici*, besides the eight *Interosses*; or if you had rather, ten. And thus much may suffice for the enumeration of the muscles.

The Figure of the Muscles when the skin with its veines, the fat, and all the fleshy membrane are taken away, that part of the fleshy membrane encreased, which takes upon it the nature of a muscle, and is as being conjoynd with the muscles.



a, the muscle of the forehead.

b, the temporall muscle.

c, the muscle shutting the eye-lid.

d, the muscle opening the wings of the nose.

e, the fore part of the yoke-bone.

f, the muscle of the upper lip tending to the nose.

g, the beginning of the masseter or grinding muscle.

h, the broad muscle consisting of a fleshy membrane.

i, k, the beginning thereof which rises immediatly from the collar-bone & the top of the shoulder.

l, that part thereof which bends forwards to *l*.

m, the muscle which lifts up the arme.

n, the pectorall muscle.

o, the membranous part of this muscle which is joyned to the

nervous part of the first muscle of the *Abdomen* or belly. *q, q*, the fleshy portion thereof, from the 6. and 7. ribs, and the insertion thereof. *r* the muscle drawing down the arme. *s*, the oblique descending muscle of the lower belly. *t, t, t*, the insertion of the greater saw muscle. *u, u*, the *linea alba* or white line, at which the two oblique descendent muscles meet, covering the whole belly. *x*, the yard, the skinned being taken away. *y*, the vessels of seed. *z*, the testicles wrapped in the fleshy membrane. *a*, the fore muscle bending the cubite. *γ, γ*, the hinde muscle bending the cubite. *δ*, the muscle extending the cubite. *ε*, the two-headed muscle extending the wrest. *ς*, the muscle producing the broad tendon on the backe of the hand. *ζ*, his tendon. *η*, the muscle turning up the *W* and. *θ*, the upper muscle flattening the *W* and. *ι*, the second of the arme-benders, whose beginning is *κ*, and tendon *λ*. *ο*, a portion of the muscle, whereof one part yeelds tendons to the wrest, the other to the thumb. *π*, the fleshlesse articulation of the thumb. *ρ*, a muscle inserted into the wrest, lying neere to the following muscle. *σ*, a muscle divided into two tendons, the one whereof is inserted into the first joint of the thumb, the other into the following. *τ*, the first muscle of the thigh, whose head is at *υ*, and tendon at *φ*, and insertion at *χ*. *ψ*, the end of the second muscle of the thigh. *ω*, the end of the third muscle of the thigh. *1*, the sixt muscle of the legge; his beginning at *2*. almost wholly membranous at *3*. *4*, the ninth muscle of the legge. *5*, the eight of the legge. *6*, a portion of the sixth and seventh of the thigh. *7*, the Glandules of the groines. *8*, the eight of the thigh. *9*, the

9, the second of the legge. 11, the innermost of the ankle. 12, the sixth muscle of the foote, his originall 13. end 14. 15, the seventh of the foote. 16, the tendon of the muscle lifting up the great toe. 17, the muscles extending the foure other toes. 18, the abductor of the great toe. 19, a transverse ligament. 20, a tendon of the ninth muscle of the foote. 21, the first muscle. 22, the fourth muscle of the foote. 23, the tendon of the third muscle. 24, a muscle bending the third bone of the foure lesser toes.





THE SEVENTH BOOK Of Tumours against Nature in Generall.

CHAP. I.

*What a Tumor against Nature, vulgarly called an Impostume, is,
and what be the differences thereof.*



AN Impostume, commonly so called, is an affect against nature, composed and made of three kinds of diseases, Distemperature, ill Conformation, and Solution of Continuitie, concurring to the hindering or hurting of the Action. An humor, or any other matter, answering in proportion to a humor, abolishing, weakening, or depraving of the office or function of that part or body in

What an Impostume vulgarly so called is. The materiall causes of Impostumes, or unnaturall tumors.

which it resides, causeth it.

The differences of Impostumes are commonly drawne from five things; quantitie, matter, accidents, the nature of the part, which they affect or possesse; and lastly, their efficient causes. I have thought good for the better understanding of them, to describe them in this following Scheme.

A Table of the differences of Tumors.

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--------------------------|---|---|---|--|--|---|----|---|-------------|---|---|--------|--|--|---|----------------------|---|---|-----------------------|--|-------------------------|---|--------------------------|---|--|--|
| from their quantity, by reason whereof <i>Impostumos</i> are called -- | { Great, which are comprehended under the generall name of Phlegmons, which happen in the fleshy parts, by <i>Galen, Lib de tumor. contranaturam, & lib. 2. ad Glauconem.</i> Indifferent, or of the middle sort, as Fellons. Small, as those which <i>Avicen</i> calls <i>Bothores</i> , i. Pushes and Pustules, all kinde of Scabs and Leprosies, and lastly, all small breakings out. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| from their accidents, as | { Colour, from whence <i>Impostumes</i> are named white, red, pale, yellow, blew, or blacke, and so of any other colour. Paine, hardnesse, softnesse, and such like, from whence they are said to be painefull, not painefull, hard, soft, and so of the rest. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| from the matter, of which they are caused and made, which is either | <table border="0"> <tr> <td rowspan="2">Naturall</td> <td rowspan="2">{</td> <td>Hot, and that</td> <td rowspan="2">{</td> <td>Sanguine, from whence a true <i>Phlegmon</i>.</td> </tr> <tr> <td>either,</td> <td>Cholerick, from whence a true <i>Erysipelas</i>.</td> </tr> <tr> <td rowspan="2">or</td> <td rowspan="2">{</td> <td>Cold & that</td> <td rowspan="2">{</td> <td>Phlegmatick, from whence a true <i>Oedema</i>.</td> </tr> <tr> <td>either</td> <td>Melancholick from whence a perfect <i>Scyrrhus</i>.</td> </tr> <tr> <td rowspan="5">Not naturall, which hath exceeded the limits of its naturall goodnesse, from whence illegitimate tumors, therefore</td> <td rowspan="5">{</td> <td>of a sanguine humor,</td> <td rowspan="5">{</td> <td>Carbuncles, Gangrenes, eating ulcers, Sphaceles are caused.</td> </tr> <tr> <td>of a cholerick humor,</td> <td>Of the grosser, the eating <i>Herpes</i>, of the subtiler the <i>Herpes miliaris</i> is made.</td> </tr> <tr> <td>of a phlegmatick humor,</td> <td>Watery and flatulent <i>Impostumes</i>, the Kings-evil, knots & all phlegmatick swellings, & excrescences.</td> </tr> <tr> <td>of a melancholick humor,</td> <td>The exquisite or perfect <i>Scyrrhus</i>, hardnesse and all sorts of cancerous Tumors.</td> </tr> <tr> <td></td> <td></td> </tr> </table> | Naturall | { | Hot, and that | { | Sanguine, from whence a true <i>Phlegmon</i> . | either, | Cholerick, from whence a true <i>Erysipelas</i> . | or | { | Cold & that | { | Phlegmatick, from whence a true <i>Oedema</i> . | either | Melancholick from whence a perfect <i>Scyrrhus</i> . | Not naturall, which hath exceeded the limits of its naturall goodnesse, from whence illegitimate tumors, therefore | { | of a sanguine humor, | { | Carbuncles, Gangrenes, eating ulcers, Sphaceles are caused. | of a cholerick humor, | Of the grosser, the eating <i>Herpes</i> , of the subtiler the <i>Herpes miliaris</i> is made. | of a phlegmatick humor, | Watery and flatulent <i>Impostumes</i> , the Kings-evil, knots & all phlegmatick swellings, & excrescences. | of a melancholick humor, | The exquisite or perfect <i>Scyrrhus</i> , hardnesse and all sorts of cancerous Tumors. | | |
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From the condition and nature of the parts which they possesse, from whence the *Ophthalmia*, is a Phlegmon of the eyes. *Parotis* a tumor neere the eares. *Paronychia* or a whitlow at the roots of the nailes; and so of the rest.

From the efficient causes, or rather the manner of doing. For some impostumes are said to be made by defluxions, others by congestion, those are commonly hot, & the other commonly cold, as it shall more manifestly appeare by the following chapter.

CHAP.

CHAP. II.

Of the generall causes of Tumors.

After what
manner tu-
mours against
nature are
chiefely made,



Here are two generall causes of Impostumes, Fluxion, and Congestion. Defluxions are occasioned, either by the part sending, or receiving; the part sending discharges it selfe of the humors, because the expulsive facultie resident in that part is provoked to expell them, moved thereto, either by the troublesomenesse of their quantity or quality. The part receiving drawes, and receives occasion of heat, paine, weakenesse (whether naturall, or accidentall) opennesse of the passages, and lower situation.

Three causes
of heat.

The causes of heat, in what part soever it be, are commonly three, as all immoderate motion (under which frictions are also contained,) externall heat, either from fire, or sun, and the use of acride meates and medicines.

Foure causes
of paine.

The causes of paine are foure, the first, is a sodaine and violent invasion of some untemperate thing, by meanes of the foure first qualities; the second is solation of continuitie, by a wound, luxation, fracture, contusion or distention; the third, is the exquisit sense of the part, for you feele no paine in cutting a bone, or exposing it to cold or heate; the fourth is, the attention, as it were of the animall faculty, for the minde diverted from the actuall cause of paine, is lesse troubled, or sensible of it.

Two causes of
weakenesse.

A part is weake, either by its nature, or by some accident; by its nature as the Glandules and the Emunctories of the principall parts; by accident, as if some distemper, bitter paine, or great defluxion have seized upon it, and wearied it, for so the strength is weakened, and the passages dilated. And the lownesse of site yeelds opportunity for the falling downe of humors.

Two causes
of congestion.

The causes of congestion are two principally, as the weakenesse of the concoctive facultie, which resides in the part, (by which the assimilation into the substance of the part of the nourishment flowing to it is frustrated) and the weakenesse of the expulsive faculty; for whilst the part cannot expell superfluities, their quantity continually encreases.

And thus oftentimes cold impostumes have their originall from a grosse and tough humor, and so are more difficult to cure.

Lastly, all the causes of Impostumes may be reduced to three, that is, the primitive, or externall; the antecedent, or internall; and the conjuncte, or containing, as we will hereafter treat more at large.

CHAP. III.

The signes of Impostumes or Tumors in generall.

The principall
signes of tu-
mors are
drawne from
the essence of
the part,



Efore wee undertake the cure of Tumors, it is expedient to know their kindes and differences, which knowledge must be drawne from their proper signes, the same way, as in other diseases. But because the proper and principall signes of tumors are drawne from the essence of the part they possesse, we must first know the parts, and then consider what their essence and composition are.

We are taught both, by skill in Anatomy, and the observation of the deprived function, especially when the affected part is one of those which lie hid in the body; for we know whether or no, the externall parts are affected with a tumor against nature, by comparing that with his naturall which is contrary. For comparing the sound part with the diseased, wee shall easily judge whether it be swollen, or no.

But because it is not sufficient for a Chirurgien onely to know these generall signes (which

(which are knowne even to the vulgar) he must attentively observe such as are more proper and nere. And these are drawne from the difference of the matter and humors of which the tumors consist.

For this *Galen* teaches, that all differences of tumors arise from the nature and condition of the matter which flowes downe and generates the tumor; also they are knowne by such accidents as happen to them, as colour, heat, hardnesse, softnesse, paine, tension, resistance.

Wherefore paine, heate, rednesse, and tension indicate a sanguine humor; coldnesse, softnesse, and no great paine, phlegme; tension, hardnesse, the livide colour of the part, and a pricking paine by fits, melancholy; and yellowish and pale colour, biting paine without hardnesse of the part, choler.

And besides, Impostumes have their periods and exacerbations following the nature and motion of the humors of which they are generated. Wherefore by the motion and fits it will be no difficult matter to know the kinde of the humor; for as in the Spring, so in the morning the blood is in motion; as in the Summer, so in the middest of the day, choler; as in Autumne, so in the evening, melancholy; as in Winter, so on the night the exacerbations of phlegme are most predominante. For *Hippocrates* and *Galen* teach, that the yeare hath circuits of diseases, so that the same proportion of the excesse and motion of humors which is in the foure seasons of the yeare, is also in the foure quarters of each day.

Impostumes which are curable have foure times, their beginning, increase, state, and declination, and we must alter our medicines, according to the varietie of these times. We know the beginning by the first swelling, of the part; The increase when the swelling, paine, and other accidents do manifestly encrease, and enlarge themselves; the state, when the foresaid symptoms increase no more, but each of them, because at their height, remaine in their state immoveable, unlesse the very matter of the tumor degenerate, and change it selfe into another kinde of humor; The declination, when the swelling, paine, feaver, restlesnesse are lessened. And from hence the Chirurgion may presage what the end of the tumor may be; for tumors are commonly terminated foure manner of wayes, if so be that the motion of the humors causing them be not intercepted, or they without some manifest cause, doe flow backe into the body.

Therefore first they are terminated by insensible transpiration, or resolution; secondly, by suppuration when the matter is digested and ripened; thirdly, by induration when it degenerates into a Scyrrhus, the thinner part of the humor being dissolved; the fourth, which is the worst of all, by a corruption and Gangrene of the part, which is, when overcome with the violence, or the abundance or quality of the humor, or both, it comes to that distemper, that it looses its proper action.

It is best to terminate a tumor by resolution; and the worst by corruption; suppuration and induration are betwene both, although that is far better than this. The signes by which the Chirurgions may presage that an Impostume may be terminated by resolving, are the remission, or slackening of the swelling, paine, pulsation, tension, heat, and all other accidents, and the unaccustomed liveness and itching of the part; and hot Impostumes are commonly thus terminated, because the hot humor is easily resolved, by reason of its subtilty.

Signes of suppuration are the intensification or encrease of paine, heat, swelling, pulsation, and the feaver; for according to *Hippocrates*, paine and the feaver are greater when the matter is suppurating, then when it is suppurated.

The Chirurgion must be very attentive to know and observe when suppuration is made; for the purulent matter oft times lies hid (as *Hippocrates* saith) by reason of the thicknesse of the part lying above, or over it.

The signes of an Impostume degenerating into a Scyrrhus hardnesse, are the diminution of the tumor, and hardnesse remaining in the part. The causes of the hardnesse not going away with the swelling, are the weakenesse of nature, the grosnesse and toughnesse of the humor, and unskilfulnesse of the Chirurgion, who by too long using resolving things hath occasioned, that the more subtile part of the humor being dissolved, the rest of the grosser nature like earthy dreggs remains concrete in the part.

Lib. 2. ad Glanc. 13. method.

The proper signes of a sanguine tumor, of a plegmaticke, of a melancholick, of a cholericke.

The knowledge of tumors by their motion and exacerbation.

Lib. 2. Epidem.

The beginning of an impostume. The encrease. The state.

The signes of a tumor to be terminated by resolution.

The signes of suppuration.

The signes and causes of a tumor terminated in a Scyrrhus.

The signes of
a Gangrene at
hand.

part. For so potters vessels dried in the Sunne grow hard. But the unskillfull Chirurgion may occasion a Scyrrhous hardnesse by another meanes, as by condensating the skinne, and incrassating the humors by too much use of repercussives. But you may perceive an Impostume to degenerate into a Gangrene thus, if the accidents of heat, rednesse, pulsation and tension shall be more intense, than they are wont to be in supuration; if the paine presently cease without any manifest cause, if the part waxe livide or blacke; and lastly, if it stinke.

Of disappea-
rance of a tu-
mor, and the
signes thereof.

But we shall treat of this more at large when we come to treat of the Gangrene and *Sphacelus*. A sodaine diminution of the tumor, and that without manifest cause, is a signe of the matter fallen backe, and turned into the body againe, which may be occasioned by the immoderate use of refrigerating thinge. And sometimes much flatulencie mixed with the matter, although there be no fault in those things which were applied.

Feavers and many other maligne Symptomes, as swooundings and convulsion, by translation of the matter to the noble parts, follow this flowing backe of the humor into the body.

CHAP. IIII.

Of the Prognosticks in Impostumes.

Cold tumors
require a lon-
ger cure.



Tumors arising from a melancholy, phlegmaticke, grosse, tough, or viscous humor, aske a longer time for their cure, than those which are of blood or choler. And they are more difficultly cured which are of humors not naturall, than those which are of humors yet contained in the bounds of nature.

Tumors made
of matter not
naturall, are
more difficul-
ty cured.

For those humors which are rebellious, offend rather in qualitie, than in quantitie, and undergoe the divers formes of things dissenting from nature, which are joyned by no similitude or affinitie with things naturall, as suet, poultis, hony, the dregs of oile, and wine; yea, and of solid bodies, as stone, sand, coale, strawes, and sometimes of living things, as Wormes, Serpents, and the like monsters.

Hippo. Aph. 8.
sect. 6.

The tumors which possesse the inner parts, and noble entrailles, are more dangerous and deadly, as also those which are in the joints, or neere to them. And these tumors which seaze upon great vessels, as veines, arteries, and nerves, for feare of great effusion of blood, wasting of the spirits and convulsion. So impostumes of a monstrous bignesse are often deadly, by reason of the great resolution of the spirits caused by their opening. Those which degenerate into a *Scyrrhus* are of long continuance and hard to cure, as also those which are in hydropicke, leprous, scabby and corrupt bodies, for they often turne into maligne and ill conditioned vulcers.

CHAP. V.

Of the generall cure of Tumors against Nature.

What must be
considered in
undertaking
the cure of tu-
mors.



Here be three things to be observed in cure of impostumes. The first is the essence thereof; the second the quality of the humor causing the impostume; the third the temper of the part affected. The first indication drawne from the essence, that is, from the greatnesse, or smallnesse of the tumor, varies the manner of curing, for the medicines must be increased or diminished according to the greatnesse of the tumor. The second, taken from the nature of the humor also changes our counsell, for a *Phlegmon* must be otherwise cured than an *Erysipelas* and an *Oedema* than a *Scyrrhus*, and a simple tumor, otherwise than a compound. And also you must cure after another manner a tumor comming of an humor not naturall, than that which is of a naturall humor, and otherwise that which is made by con-
gestion,

gestion, than that which is made by defluxion. The third Indication is taken from the part in which the tumor resides; by the nature of the part we understand its temperature, conformation, site, faculty, and function.

What we must understand by the nature of the part.

The temperature indicates that some medicines are convenient for the fleshy parts, as those which are more moist; others for the nervous, as more drie; for you must apply some things to the eye, and others to the throat; one sort of things to these parts which by reason of their raritie are easily subject to defluxion, another to those parts which by their density are not obnoxious to it.

But we must have good regard to the site of the part, as if it have any connexion with the great vessels, and if it be fit to powre forth the matter and humor when it is suppurated.

Galen by the name of faculty understands the use and sense of the part. This hath a manifold indication in curing, for some parts are principall, as the Braine, Heart, and Liver; for their vertue is communicated to the whole body, by the nerves, arteries, and veines.

What we must understand by the faculty of the part.

Others truly are not principall, but yet so necessary that none can live without them, as the Stomacke. Some are endued with a most quicke sence, as the eye, the membranes, nerves, and tendons; wherefore they cannot endure acrid and biting medicines. Having called to minde these indications, the indication will be perfected by these three following intentions, as if we consider the humor flowing downe, or which is ready to flow; the conjunct matter, that is, the humor impacted in the part; the correction of accidents; yet so that we alwayes have care of that which is most urgent and of the cause. Therefore first repercussives must be applied for the antecedent matter, strong or weak, having regard to the tumor as it is then, only excepting sixe conditions of Tumors; the first is, if the matter of the Tumor be venenate: the second, if it be a criticall abscesse: the third, if the defluxion be neare the noble parts: the fourth, if the matter be grosse, rough, and viscid: the fifth, when the matter lies farre in, that is, flowes by the veines which lies more deepe: the sixth, when it lies in the Glandes. But if the whole body be plethoricke, a convenient diet, purging, and Phlebotomie must be appointed, frictions and bathes must be used. Ill humors are amended by diet and purging. If the weaknesse of the part receiving draw on a defluxion, it must be strengthened.

What we must consider in performing the cure.

What things dissuade us from using repercussives.

If the part be inferiour in its site, let the patient be so seated, or layed, that the part receiving, as much as may be, may be the higher. If paine be the cause of defluxion, we must asswage it by things mitigating it. If the thinnesse, or lightnesse of the humor cause defluxion, it must be inspissate by meats and medicines. But for the matter contained in the part, because it is against nature, it requires to be evacuate by resolving things, as Cataplasmes, ointments, fomentations, cupping glasses; or by evacuation, as by scarifying, or by suppurating things, as by ripening and opening the Impostume. Lastly, for the conjunct accidents, as the Fever, paine and such like, they must be mitigated by asswaging, mollifying and malaxing medicines, as I shall shew more at large hereafter.

CHAP. VI.

Of the foure principall and generall Tumors, and of other Impostumes which may be reduced to them.



The principall and cheife Tumors which the abundance of humors generate are foure, A *Phlegmon*, *Erysipelas*, *Oedema* and *Scyrrhus*: innumerable others may be reduced to these, distinguished by divers names according to the various condition of the efficient cause and parts receiving. Wherefore a *Phygethlum*, *Phyma*, *Fellon*, *Carbuncle*, inflammation of the eyes, *Squincy*, *Bubo*,

What tumors may be reduced to a Phlegmon.

& lastly all sorts of hot and moist tumors may be reduced to a Phlegmon. The *Herpes miliaris*, the eating *Herpes*, Ringwormes and Tettors and all impostumes brought forth

Which to an Erysipelas.

Which to an
Oedema.

forth by choler, are contained under an *Erysipelas*. *Atheromata*, *Steatomata*, *Melicerides*, the *Testudo*, or *Talpa*, *Ganglion*, Knots, Kings-evill, Wens, watery Ruptures, the *Ascites* and *Leucophlegmatia* may be reduced to an *Oedema*, as also all flatulent tumors, which the abundance of corrupt Phlegme produces.

Which to a
Scyrrhus.


In the kindred of the *Scyrrhus* are reckoned a Cancer, Leprosie, Warts, Corns, a *Thymus*, a *Varix*, *Morphew*, black and white, and other Impostumes arising from a melancholy humor.

Now wee will treat of these Tumors in particular beginning with a Phlegmon.

CHAP. VII.

Of a Phlegmon.

What a true
Phlegmon is.

 Phlegmon is a generall name for all Impostumes, which the abundance of inflamed blood produces. That is called a true Phlegmon, which is made of laudable blood, offending onely in quantity. But a bastard Phlegmon, or a Phlegmonous Impostume hath some other, and proper name; as a Carbuncle, Fel-lon, Gangrene, Sphacel, and the like malignant Pustules. So when there is a conflux of diverse humor into one tumor, divers kinds of phlegmonous Impostumes called by diverse names, according to the more abundant humor, arise; as if a small portion of phlegme shall be mixed with a greater quantity of blood, it shall be called an *Oedematous Phlegmon*; but if on the contrary, the quantity of phlegme be the greater, it shall be named a phlegmonous *Oedema*, and so of the rest; alwayes naming the tumor, from that which is most predominant in it.

A Phlegmon,
one thing, and
a Phlegmo-
nous tumor
another.

Therefore we must observe that all differences of such tumors arise from that, either because the blood causing it offends onely in quantity; which if it doe, it causes that tumor which is properly called a Phlegmon; if in quality, it makes a Phlegmonous tumor, because the matter thereof is much departed from the goodnesse of blood.

But blood is said to offend in quantity, either by admixture of some other matter, as Phlegme, Choler, or melancholy, from whence proceedes *Oedematous*, *Erysipelous* and *Scyrrhus* Phlegmons; or by corruption of its proper substance from whence Carbuncles, and all kindes of Gangrens; or by concretion, and when nature is disappointed of its attempted and hoped for suppuration, either by default of the aire, or patient, or by the error of the physition; and hence oft times happen *Atheroma's*, *Steatoma's*, and *Melicerides*. Although these things be set downe by the ancients, of the simple and simular matter of the true Phlegmon; yet you must know, that in truth there is no impostume, whose matter exquisitely shewes the nature of one, and that simple humor without all admixture of any other matter; for all humors are mixed together with the blood, yet from the plenty of blood predominating, they are called Sanguine, as if they were of blood alone.

Wherefore if any Tumors resemble the nature of one simple humor, truly they are not of any naturall humor, but from some humor which is corrupt, vitiated and offending in quality; for so blood by adustion degenerates into choler and melancholy.

Gal. lib. de tu-
moribus, & 2.
ad Glanc.

Therefore a true Phlegmon is defined by *Galen*; A tumor against nature, of laudable blood flowing into any part in too great a quantity.

This tumor though most commonly it be in the flesh, yet sometimes it happens in the bones, as *Hippocrates* and *Galen* witnesse.

Hippoc. lib.
de vuln:
cap. Gal. lib. de
tumor. præter
naturam.

A phlegmon is made and generated thus, when blood flowes into any part, in too great a quantity; first the greater veines and arteries of the affected part are filled, then the middle, & lastly, the smallest and capillary; so from those thus distended, the blood sweats out of the pores and smal passages like dew; and with this the void spaces which are between the simular parts are first filled, & then with the same blood all the adjacent

adjacent parts are filled, but especially the flesh, as that which is most fit to receive defluxions, by reason of the spongiouse rarity of its substance; but then the nerves, tendons, membranes, and ligaments, are likewise stuffed full; whereupon a Tumor must necessarily follow, by reason of the repletion which exceeds the bounds of nature; and from hence also are tension and resistance; and paine also happens at the same time, both by reason of the tension and preternaturall heate.

And there is a manifest pulsation in the part, specially whilest it suppurates; because the veines, arteries, and nerves, are much pained, being they are not onely heated within by the influx of the fervide humor, but pressed without by the adjacent parts. Therefore seeing the paine comes to all the foresaid parts because they are too immoderately heated and pressed, the arteries which are in the perpetuall motion of their *Systole & diastole*, whilest they are dilated, strike upon the other inflamed parts, whereupon proceeds that beating paine.

The cause of a beating paine in a Phlegmon

Hereunto adde, the Arteries then filled with more copious and hot blood, have greater neede to seeke refrigeration by drawing in the encompassing Aire; wherefore they must, as of necessitie, have a conflict with the neighbouring parts which are swollen and pained. Therefore from hence is that pulsation in a Phlegmon which is defined by *Galen*, an agitation of the arteries, painefull, and sensible to the Patient himselve; for otherwise as long as we are in health, we doe not perceive the pulsation of the arteries.

Comm. ad Aph. 21. sect. 7.

Wherefore these two causes of pulsation, or a pulsifick paine in a phlegmon are worthy to be observed, that is, the heate and abundance of blood, contained in the vessels and arteries (which more frequently than their wont incite the arteries to motion, that is, to their *Systole* and *Diastole*) and the compression and streightning of the said arteries, by reason of the repletion and distention of the adjacent parts, by whose occasion the parts afflicted and beaten by the trembling and frequent pulsation of arteries are in paine.

Hence they commonly say, that in the part affected with a Phlegmon, they feele as it were the sense or stroke of a Mallet or Hammer smiting upon it. But also besides this pulsation of the arteries, there is, as it were another pulsation with itching from the humors whilst they putrefie and suppurate, by the permixtion, motion, and agitation of vapours thereupon arising.

Another kinde of Pulsation in a phlegmon.

The cause of heate in a Phlegmon is blood, which whilest it flowes more plentifully into the part, is as it were troden or thrust downe, and causes obstruction, from whence necessarily followes a prohibition of transpiration, and a putrifaction of the blood, by reason of the preternaturall heate. But the Phlegmon lookes red by reason of the blood contained in it, because the humor predominant in the part shines through the skinn.

CHAP. VIII.

Of the causes and signes of a Phlegmon.

THe causes of a Phlegmon are of three kindes; for some are primitive, some antecedent, and some conjunct. Primitive are falls, contusions, straines, immoderate labour, frictions, application of acrid ointments, burnings, long staying or labouring in the hot Sun, a diet unconsiderate, and which breeds much blood. The antecedent causes are, the great abundance of blood, too plentifully flowing in the veines. The conjunct, the collection or gathering together of blood impacted in any part.

The primitive causes of a Phlegmon.

The Antecedent and conjunct. The signes of a Phlegmon.

The signes of a Phlegmon are swelling, tension, resistance, feaverish heate, paine, pulsation, (especially while it suppurates) rednesse, and others, by which the abundance of blood is signified.

And a little Phlegmon is often terminated by resolution; but a great one by supuration; and sometimes it ends in a Scyrrhus, or a Tumor like a Scyrrhus; but

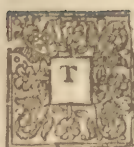
otherwhile

otherwhiles in a Gangren, that is, when the facultie, and native strength of the part affected, is overwhelmed by the greatnesse of the defluxion, as it is reported by Gal. l. de Tum. Galen. The Chirurgion ought to consider all these things, that he may apply and vary such medicines as are convenient for the nature of the Patient, and for the time and condition of the part affected.

CHAP. IX.

Of the cure of a true Phlegmon.

What kinde
of diet must be
prescribed in a
Plegmon,



He Chirurgion in the cure of a true Phlegmon must propose to himselfe foure intentions. The first of Diet; This, because the Plegmon is a hot affect and causes a feaver, must be ordained of refrigerative and humecting things, with the convenient use of the fixe things not naturall, that is, aire, meat, and drinke, motion and rest, sleepe and waking, repletion, and inanition; and lastly, the passions of the minde. Therefore let him make choise of that aire which is pure and cleere, not too moist, for feare of defluxion, but somewhat coole; let him command meates which are moderately coole and moist, shunning such as generate blood too plentifully; such will be brothes not too fat, seasoned with a little Borage, Lettuce, Sorrell, and Succory, let him be forbidden the use of all spices, and also of Garlicke, and Onions, and all things which heate the blood, as are all fatty and sweet things, as those which easily take fire. Let the Patient drinke small wine, and much alaied with water: or if the feaver be vehement, the water of the decoction of Licoris, Barly, and sweet almonds, or water and sugar; alwayes having regard to the strength, age, and custome of the Patient.

For if he be of that age, or have soled his life, that he cannot want the use of wine, let him use it, but altogether moderately. Rest must be commanded; for all bodies waxe hot by motion, but let him chiefly have a care that hee doe not exercise the part possessed by the plegmon for feare of a new defluxion. Let his sleepe be moderate, neither, if he have a full body, let him sleepe by day, specially presently after meate. Let him have his belly soluble, if not by nature, then by art, as by the frequent use of glisters and suppositories. Let him avoid all vehement perturbations of minde, as hate, anger, brawling; let him wholly abstaine from venery.

How to divert
the defluxion
of humors.

This manner of diet thus prescribed, wee must come to the second scope, that is, the diversion of the defluxion, which is performed by taking away its cause, that is, the fulnesse and illnesse of the humors. Both which we may amend by purging and blood-letting, if the strength and age of the patient permit.

The paine
must be asswa-
ged.

But if the part receiving be weake, it must be strengthened with those things which by their astringent amend the opennesse of the passages, the violence of the humor being drawne away by cupping glasses, frictions, ligatures. But if paine trouble the part, which is often the occasion of defluxion, it must be mitigated by medicines asswaging paine.

When we must
use repercussives.

The third scope is to overcome the conjunct cause. That we may attaine to this, we must enter into the consideration of the tumor, according to its times, that is, the beginning, encrease, state, and declination. For from hence the indications of variety of medicines must be drawne. For in the beginning we use repercussives to drive away the matter of the Phlegmon flowing downe, as the white of an Egge, Oxierate, the juices or waters of Houfelecke, Plantaine, Roses; Cataplasmes of Henbane, Pomgranate, Pills, Balausties, Bolearmenicke, Terra sigillata, oile of Roses, Quinces, Mirilles, Poppies.

Of these simples, variety of compound medicines arises. This may be the forme, of a Cataplasme. R, *far. bordei* ℥ij. *succi sempervivi*, *plantag. an.* ℥iij. *pul. malicorij*, *balaustrorum & rosar. an.* ℥ij *ol. mirtill. & rosar. an.* ℥j, *fiat Cataplasma.* Another, R, *Plantag. solani*, *hyoscyam. an. m. ij.* *cauda equin. tapsi barb. cintonodie an. m. j.* *coquantur perfecte in oxierato, pistentur, trañciantur, addendo pulveris mirtill. nuc. cupressi. & ros. rub. an.* ℥iij, *farin. fab. ℥ij*, *olei rosar. & cydon. an.* ℥iij: mixe

mixe them and make a cataplasma to the forme of a liquid pultis. And you may use this liniment, by dipping linnen clothes in it, and applying to the part; R, *ol. nymph. & rosar. an. ʒiij, aq. ros. solani & plantag. an. ʒij, aceti ʒiij, albumin. ovorum n. iij, fiat linimentum.* Also *ung. rosatum & ung. Album, camphor. Ras* are good to apply to it, as in like manner, *Emp. Diacalcitheos* dissolved in vinegar, and oile of Roses, and also *Populeon* may be used. In the increase you must have care of the humor flowing downe, and of that which already impacted in the part, did formerly fall down. Therefore repercussives must be tempered & mixed with discussive medicines, but so that they may carry the chiefe sway, as R, *fol. malva, absinth. plantag. an. m. iij, coquantur in oxicato, contundantur, trajectis adde farina fabarum & hordei an. ʒj, pul. rosar. rub. & Absinth. an. ʒi, ol. rosar. & chamem. an. ʒj, fiat cataplasma ad formam pultis satis liquida.* Another. R, *farina hord. ʒiij. farina sem. lini & fenugraci, an. ʒj. coquantur in aqua communi, addendo sub finem pul. mirtillorum, rosarum & chamemeli an. ʒʒ, axungia anseris & olei rosarum an. ʒj, misce, fiat cataplasma.*

What locall medicines we must use in the encrease.

But in the state the repercussives, & discussives ought to be alike with some anodine, or mitigating medicines, if it be painefull, as R, *rad. Althea ʒiij, malva, parietar. an. m. iij, coquantur sub cineribus, addendo farin. fabarum & lentium an ʒij, pulveris chamem. & meliloti an. ʒʒ. olei chamem. & rosar. an. ʒj. axungia gal. ʒij. fiat cataplasma.* Another R, *mica panis triticei aqua calida macerati ʒʒ, pulveris rosar. rub. & absinth. ana. ʒvj. olei aneth. & mellis com. an. ʒij. misce omnia simul & fiat cataplasma ad formam pultis satis liquida;* which is of chiefe use when there is paine.

What in the state,

But when the violence of paine and other symptomes are asswaged, it is likely that the plegmon is come to determination. Wherefore then we must use more powerfull and strong discussives, and onely then beginning with the more gentle, lest the subtiler part of the humor being dissolved, the grosser, remaining in the part, should grow hard, as R, *mal. bisnal. an. m. iij. coquantur addendo farina hordei ʒij, mellis com. ʒj, ol. chama. & melilot. an. ʒʒ, fiat cataplasma,* Or R, *radicum Brion. & Cucumer. agresti. an. ʒij, florum chamem. & melilot. ana. m. iij. coquantur in hydromelite addendo farina sem. lini & fenugrac. an. ʒij, ol. aneth. axungia Anser. & anat. an. ʒj. fiat Cataplasma.* And this plaister following may here finde place.

What in the declination

R, *Diachyl. mag. ʒij, Empl. de melilot. ʒj, olei aneth. & chamamel. an. ʒʒ:* dissolve them all together and make a medicine for your use. Or R, *Empl. de mucag. & oxycro: an. ʒij. Empl. Diachyl. Ireat. ʒj. olei liliorum & chamamel. quantum satis est,* and make thereof a soft emplaister.

The fourth scope of curing a Phlegmon consists in correction of the accidents which accompany it; of which paine is the principall.

The correction of the accidents,

Wherefore the Chirurgion must be diligent to asswage it, for besides, that it weakens the strength, and debilitates and depraves the function, it also causes defluxions by drawing the bloud and spirits to the part affected.

According to the varietie of paine there must be variety of medicines, as R, *mica panis albi in lacte tepido macerati ʒʒ, vitell. ovorum iij. ol. rosar. ʒij, croci ʒʒ, fiat cataplasma.* Or R, *florum chamem. & melil. an. p. iij. farina sem. lini. & fenugrac. an. ʒj. fiat cataplasma pultis satis liquida.* Or R, *mucagin. rad. althea & fenugraci an. ʒiij, ol. rosar. & aneth. an. ʒj. farin. sem. lini. quantum satis, ut inde formetur cataplasma satis molle.*

The discommodities of paine. Medicines asswaging paine.

But if the paine remaine, and yeeld not to these remedies, we must flie to stronger, making use of narcoticks, or stupifactives, but with care lest we benum, or dead the part; as R, *fol. hyoscyani & papaver. sub. cineribus coctorum an. ʒiij, adipis suilla & ol. ros. an. ʒj, croci. ʒij, fiat cataplasma:* or, R, *fol. cicuta & solani furiosi. an. ʒiij, coquantur sub cineribus, pistentur, & trajectantur addendo unguent. popul. & ol. rosar. an ʒj, farin. fenugrac. quantum satis erit, ut inde formetur cataplasma ad formam pultis liquida.*

Narcoticke medicines.

CHAP. X.

The cure of an ulcerated Phlegmon.

The signes
of a Phlegmon
turning to an
Abscess.



Vt it often happens, that the humor is so impact in the part, that it cannot be repressed, and so grosse, that it cannot be discussed; which we may know by the greatnesse of the heat and swelling, by the bitternesse of the pricking paine, the feaver, and pulsation, and heavinesse.

Lib. 2 ad
Glauc. Cap. 7.

Wherefore laying aside all hope of discussing, wee must come to suppuratives. For which purpose *Galen* fomentes the swollen part with water, or oile being warme, or with both of them; and then applies this following cataplasme.

Suppurative
medicines.

R^{re}, *farina triticea* vel *mica panis*, ℥iij. ol. com. ℥iij, aqua com. quantum sufficit, fiat cataplasma; or R^{re}, rad. *liliorum alb.* & *alibea*, an. ℥iij, fol. *malva*, *parietar.* & *senecionis ana.* m. j. coquantur in *hydromelite*, pissentur, trajectis adde *farin. sem. lini* ℥ij, *axungie suilla*, ol. *liliorum* an. ℥ss, fiat cataplasma: Or R^{re}, *malva*, *bismalva*, *violar.* an. m. j. *caricarum* ping. n. x. *passul.* ℥ij, coquantur in aq. com. tussis, & trajectis, adde *mellis* com. ℥ij, ung. *basilicon.* & *butyri recent.* ana. ℥j, fiat cataplasma. You may profitably use for the same purpose *Empl. Diachylon magnum*, or *Basilicon*. Or R^{re}, *Empl. Dyachil. mag.* ℥iij. ung. *basilicon.* ℥j, ol. *liliorum* ℥ss. Of these mixed together make a medicine for the foresaid use.

The signes of
pus or matter.

When the heat, paine, feaver, and other accidents shall remit, when the tumor hath a sharpe head, when by the pressing of your finger you finde the humor to flow as it were to and fro, then you may know that it is ripe.

Wherefore without any further delay the tumor must be opened, lest the matter too long shut up, corrode the adjacent parts, and the ulcer become sinuous and fistulous.

For this usually happens, especially then, when the matter is venenate or maligne, or when the swelling is neare a joint, or at the fundament, or such like hot and moist places.

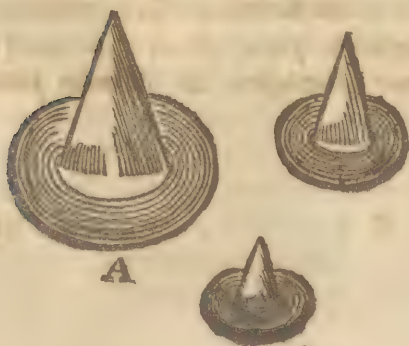
Hip. lib. de
Fistula.

For by the decree of *Hippocrates* wee should anticipate the maturation of such tumors by opening.

They may be opened with an incision knife or causticke, and that, either actuall or potentiall. For if the patient shall be hartlesse and lesse confident, so that he either cannot, or will not endure any instrument, you must make way for the matter by a potentiall cautery. You may also doe the businesse by another slight, as thus.

Thrust the point of a sharpe knife or lancet, through a brasse counter that it may stand fast in the midst thereof; then cover it diligently with some Emplaister or Cataplasme, that neither the Patient nor standers by perceive the deceit: then laying on the plaister as that you would make a passage for the matter by that meanes, but when you have fitted the point to the part, where it is fit to open the tumor, so guide the Counter with your fingers, that you may presently make an impression into the Tumor, sufficient for excluding the matter. I have here expressed three deliniations of such Instruments, that you may use these, either bigger, lesser or indifferent, as occasion shall serve.

Counters with the points of Knives or Lances put
through them.



A. shewes the Counter or peece of Silver.
B. shewes the point of the Lancet.

Other Instruments for opening Abſceſſes.



Rings in which little knives lye hid,
fit for to open Abſceſſes.

The Deliniation of a Trunke or
hollow Inſtrument going
with a ſpring.

- A. Shewes the thicker pipe.
- B. Shewes another which enters and is faſtened in the other by a ſcrue.
- C. The point of the Inſtrument, looking out.
- D. The ſpring which forces the Inſtrument.

But there are ſeven things which muſt be diligently conſidered in opening all ſorts of Impoſtumes. The firſt is, that you put your knife to that part of the Abſceſſe which is the ſofter, and yeelds to the impreſſion of your fingers, and where it riſes into a head, or point. The ſecond is, that you make choiſe of that place for diſſection which is the loweſt, that ſo the contained impurity may the more readily flow out, and not ſtay in the paſſage. The third is, that it be made according to the wrinkles of the ſkin, and the right fibers of the Muſcles lying next under the ſkin. The fourth is, that you turne your knife from the larger veſſels and Nerves worth ſpeaking of. The fifth is, that the matter contained in them be not evacuated too abundantly at once in great Abſceſſes, leſt thereby the ſtrength be dejected, the ſpirits being much waſted together with the unprofitable humor. The ſixth is, that the affected part be handled as gently as you can. The ſeventh is, that after the opening when the matter is evacuated, the Abſceſſe be clenſed, filled with fleſh, and laſtly consolidated and cicatrized. But ſeeing that commonly after ſuch ſections ſome part of the Tumor remains, all the contained humor being not wholly ſuppurated, the Chiurgion may perceive that this is an implicate affect, that is a, Tumor and Ulcer. But the Cure thereof muſt be ſo, that you take away the Tumor before the ulcer; for the ulcer cannot be healed before the part be reſtored to its nature. Therefore the ſuppuratives formerly preſcribed muſt be uſed, and the ulcer muſt be dreſſed for two or three dayes with this following Medicine.

R. Vitellum unius ovi, terebinth. Venetæ, & ol. Roſar. an. ʒʒ, fiat medicamentum. Then you muſt ſeek to clenſe it by this following Medicine.

What the cure
muſt be after
the opening
of the Abſceſſe

Deterſive
Medicines.

R. Mellis

*Unguentum
de Appio.*

Rx Mellis rosar. ʒij, Syrupi rosar. & tereb. Venet. an. ʒijß, far. hordei ʒij, fiat medicamentum ad usum. For this very purpose there is a singular Deterfive made of *Appium* or *Smallage* of which this is the description.

Rx Succi appij, plantag. beton. an. ʒij, Mellis commun. ʒv, terebint. Venet. ʒiiij, farin. Hordei & Orobi, an. ʒij, pulveris Aloës, rad. Ireos florent. myrrha, an ʒj. coquatur melcum succis, quibus consumptis addantur farina & pulveres, & misceantur omnia ad formam unguenti. But if you would cleanse it more powerfully, you may use *Unguentum Apostolorum*; or *Unguentum Aureum* and *Egyptiacum* mixed according to the scope you conceive in your minds, when the ulcer shall seeme sufficiently cleansed, it shall be filled with flesh and cicatrized after the manner we shall declare in the proper treatise of the cure of *Ulcers*.

CHAP. XI.

Of feavers, and the cures of these feavers which accompany Plegmons.

The Feaver of
a Phlegmon.
What a Feaver
is-

AMongst the *Symptoms* which most usually accompany *Phlegmons*, & afflict all the body of the patient, *Feavers* are the cheife; that is hot, and dry distempers kindled in the heart, and thence by the *Artery* is sent over all the body; yet these which usually follow this kinde of *Tumors* are *Ephemera*, that is, *Diary*, unputrid *Synochi* or putrid *Synochi*; Of whose nature and order of cure I will here briefly relate what I have learnt from my Masters, that is, *Doctors of Physicke*, as I have beene conversant with them in the practise of my *Arte*.

What an
Ephemera, or
Diarye is,

The *Ephemera*, or *Diary* [that is of one day] is, a hote and dry distemperature kindled in the vitall spirits. It hath that name, because by its owne nature it carries not above the space of one day or twenty foure houres, by reason it is kindled in a subtile easily diffipable matter.

The causes
thereof,

The efficient causes of this Feaver are wearinesse, hunger, drunkenness, anger, fury, sorrow, watching, great and peircing cold, Aduersion, Bathes, and manner of living inclining more to heat than ordinary, applying, using or drinking of acride medicines as *Poysons*, or of hot meats, and drinckes; to conclude, all the efficient causes common to all Feavers, putrifaction onely excepted which properly appertaines to putride feavers.

*Aphorism. 55.
lib. 4.*

For a *Bubo* also, which is a *Phlegmon* of the *Glandules*, causes a *Diary*, as *Hippocrates* shewes. All feavers proceeding from the *Tumors* of the *Glandules* are evill, the *Diary* excepted. Which *Aphorisme* must be understood warily and with that distinction which *Galen* gives in his commentary, where he saith; It is only to be understood of *Tumors* risen in the *Glandules* without occasion, that is, without any evident and manifest cause; for otherwise Feavers that thence take their originall, though not *Diary*, yet are not all evill, as we learne by *Buboes* in *Children*, and the venereous *Buboes*, which happen without inflammation, or corruption of the liver, for such commonly have no malignant Feaver accompanying them, which thing is worthy a *Chirurgions* observation.

The signes of a
Diarye.

The common signes of a *Diary* are, a moderate and vaporous heate feeling gentle to the hand, a pulse swift and frequent, sometimes great and strong, as when the *Diary* is caused by anger; sometimes litle, if the Feaver proceede from sorrow, hunger, cold, crudity; for other respects equall and ordinary.

Why in a *Diarye*
the vrines
like to these in
health.

The most certaine signes are, if the Feaver come upon one not by litle and litle but sodainly and that from some externall and evident cause, no loathing of meat, no causelesse wearinesse, no deepe sleepe, yawning, great paine, restlesnesse, shaking nor cold going before, and lastly no other troublesome symptome preceeding. Wee here make no mention of the urine, because most frequently they resemble the vrines of sound bodyes; for in so short a time as *Diaryes* endure, there cannot so great a perturbation be raised in the blood that there may be signes thereof found in the urine. A *Diary* is ended in one fit, which by the proper nature of this Feaver lasts but one day,

day, although sometimes, otherwise it is extended to three, or foure dayes space; and then it easily degenerates into a Putride, especially any error of the Patient, Philition, or those which attend him concurring therewith, or if the externall things bee not rightly fitted.

This Feaver is terminated either by insensible transpiration, or by the moisture of the skin, or by a sweate naturall, gentle, and not ill smelling; to this Diary wee may referre the unputride *Synochus*, generated of blood not putrid, but onely heated beyond measure. For usually there arises a great heate over all the body, by meanes of the blood immoderately heated; whence the veines become more tumide, the face appeares fiery, the Eyes red and burning, the breath hot, and to conclude, the whole habite of the body more full, by reason of that Ebullition of the blood, and the diffusion of the vapours thence arising over all the body: Whence it is, that this kinde of *Synochus* may be called, a vapourous Feaver. To this Children are incident as also all sanguine bodyes, which have no ill humors. The cure of this and the *Ephemera* or Diary is the same; because it may scarce seeme different from the *Ephemera* in any other thing, than that it may be prolonged for three or foure dayes. Wherefore whatsoever we shall say for the cure of the *Ephemera*, may be all applyed to the *Synochus*, bloodletting excepted, which in an unputrid *Synochus* is very necessary.

The unputride
Synochus,

Now the Cure of a Diary Feaver consists in the decent use of things not naturall, contrary to the cause of the disease; wherefore bathes of warme and naturall water are very profitable; so that the Patient be not Plethoricke, nor stufft with excrements, nor obnoxious to catarrhes and defluxions, because a catarrhe is easily caused and augmented by the humors diffused and dissolved by the heate of a bath; therefore in this case we must eschew frictions, and anointing with warme oile, which things notwithstanding are thought very usefull in these kind of Feavers, especially when they have their originall from extreme labour, by astriction of the skin or a *Bubo*. Let this be a generall rule, that to every cause, whence this Feaver proceeded, you oppose the contrary for a remedy; as to labour, rest; to watching, sleep; to anger and sorrow, the gratefull society of friends, and all things replenished with pleasant good will; and to a *Bubo*, the proper cure thereof.

The cure of a
Diary feavers

Wine moderately tempered with water according to the custome of the sicke patient, is good and profitable in all causes of this Feaver, except he be pained in his head, or that the Feaver drew its originall from anger, or a *Bubo*; for in this last case especially, the patient must abstaine wholly from wine, untill the inflammation come to the state, and begins to decline. This kinde of Feaver often troubles infants; and then you must prescribe such medicines to their Nurses, as if they were sicke, that so by this meanes their milke may become medicinable. Also it will be good to put the Infant himselfe into a bath of naturall and warme water, and presently after the bath to anoint the ridge of the backe and brest with oile of Violets. But if a *Pblegmon* possesse any inward part, or otherwise by its nature be great, or seated neare any principall Bowell, so that it may continually send from it either a putrid matter or exhalation to the heart, and not onely affect it by a quality or preternaturall heate by the continuity of the parts, thence will arise the Putride *Synochus*, if the blood by contagion putrifying in the greater vessells, consists of an equall mixture of the foure humors. This Feaver is chiefly thus knowne, it hath no exacerbations, or remissions, but much lesse intermissions; it is extended beyond the space of twenty foure houres, neither doth it then end in vomite, sweat, moisture, or by litle and litle by insensible transpiration, after the manner of intermitting Feavers, or Agues; but remains constant, untill it leaves the Patient for altogether; it commonly happens not unlesse to these of a good temper and complexion, which abound with much blood, and that tempered by an equall mixture of the foure humors. It commonly endures not long, because the blood by power of some peculiar putrifaction degenerating into choler or Melancholy, will presently bring forth another kinde of feaver, to wit a Tertian or continued Quartaine.

The use of
wine in a Dia-
rye,

How a put-
ride *Synochus*
is caused.

The cure of this Feaver (as I have heard of most learned Physitions) chiefly consists in Bloodletting. For by letting of blood the fullnesse is diminished, & therefore the obstruction is taken away, and lastly the putrefaction. And seeing that in this kinde of

Phlebotomy
necessary in a
putride *Synochus*

Feaver

Feaver there is not onely a fault of the matter, by the putrefaction of the blood, but also of the Temper by excesse of heat; certainly Phlebotomy helps not only, as we said, the putrefaction, but also the hote distemper. For the blood in which all the heate of the creature is contained, whilest it is taken way, the acrid and fuliginous excrements exhale and vanish away with it, which kept in, encreased the Feverish heate. Moreover, the veines, to shun emptinesse, which nature abhors, are filled with much cold aire in stead of the hot blood which was drawne away, which followes a cooling of the habite of the whole body; yea and many by meanes of Phlebotomy have their bellies loosed, and sweate, both which are much to be desired in this kinde of Feaver.

What benefit we may reape by drawing blood even to fainting.

This moved the ancient Physitions, to write, that we must draw blood in this disease, even to the fainting of the Patient.

Yet because thus, not a few have poured out their lives together with their blood, it will be better and safer to divide the evacuations, and draw so much blood at severall times, as the greatnesse of the disease shall require, and the strength of the Patient may beare.

Why we must give a clyster presently after blood-letting.

When you have drawne blood, forthwith inject an emollient and refrigerative clyster; lest that the veines emptied by Phlebotomy may draw into them the impurity of the Guts; but these clysters which coole too much, rather binder the belly, than loose it. The following day the Morbifick matter must be partly evacuated by a gentle purge, as a bole of *Cassia*, or *Catholicon*; then must you appoint Syrupes which have not onely a refrigerative quality, but also to resist putrefaction, such as the Syrupe of Lemmons, Berberries, of the Iujce of Citrons, of Pomgranats, Sorrell and Vineger; let his diet be absolutely cooling and humecting and also slender; for the native heate much debilitated by drawing of a great quantity of blood cannot equall a full diet. Therefore it shall suffice to feed the Patient with chicken and veale brothes made with cooling herbes, as Sorrell, Lettuce and Purslaine. Let his drinke be Barly water, Syrup of Violets mixed with some pretty quantity of boiled water, *Iulepum Alexandrinum*, especially if he be troubled with scouring, or laske. But the Physition must chiefly have regard to the fourth day, for if then there appeare any signes of concoction in the excrements, the *Crisis* must be expected on the seventh day and that either by a loosenesse of the belly, or an abundance of urine, by vomits, sweats, or bleeding. Therefore we must then doe nothing, but commit the whole businesse to nature.

When drinking of water is to be permittted in a putride Synochus.

But for drinking cold water, which is so much commended by *Galen* in this kinde of Feaver, it is not to be suffered before there appeare signes of concoction; moreover in the declining of the disease the use of wine will not be unprofitable to helpe forwards sweats.

CHAP. XII.

Of an Erysipelas, or Inflammation.



Having declared the cure of a Phlegmon, caused by laudable blood, we must now treat of these tumors which acknowledge Choler the materiall cause of their generation, by reason of that affinity which interceeds betweene Choler and Blood. Therefore the tumors caused by naturall Choler, are called *Erysipelata*, or Inflammations; these containe a great heate in them, which chiefly possesse the skin, as also oftentimes some portion of the flesh lying under it. For they are made by most thin and subtle blood (which upon any occasion of inflammation easily becomes cholericke) or by blood and choler, hotter than is requisite, and sometimes of choler mixed with an acride serous humor.

The definition of an Erysipelas.

Gal. Cap. 2. lib. 14. Meth. med. 2. ad Glau.

That which is made by sincere and pure choler, is called by *Galen*, a true and perfect *Erysipelas*. But there arise three differences of *Erysipelas* by the admixture of choler with the three other kinds of humors. For if it being predominant be mixed with blood, it shall be termed *Erysipelas Phlegmonodes*; if with phlegme, *Erysipelas œdematodes*; if with Melancholy, *Erysipelas Scirrhus*. So that the former and

and substantive word shewes the humor bearing dominion, but the latter or adjective that which is inferiour in mixture. But if they concur in equall quantity, there will be thereupon made *Erysipelas Phlegmone*; *Erysipelas cedema*; *Erysipelas scirrhus*.

Galen acknowledges two kinds of *Erysipelas*, one simple and without an ulcer, Two kinds of Erysipelas. the other ulcerated. For *Choler* drawne and severed from the warmnesse of the blood, running by its subtilty and acrimony vnto the skin, ulcerates it; but restrained by the gentle heat of the blood, as a bridle, it is hindred from peircing to the top of the skin, and makes a tumor without an ulcer. But of unnaturall *choler* are caused many other kinds of cholericke tumors, as the *Herpes excedens*, and *Miliaris*, and lastly all sorts of tumors which come betweene the *Herpes* and *Cancer*. You may know *Erysipelas* chiefly by three signes, as by their colour, which is a yellowish red; by their quicke sliding backe into the body at the least compression of the skin (the cause of which is the subtilty of the humor and the outward site of it under the skin, whereupon by some an *Erysipelas* is called a Disease of the skin) Lastly by the number of the Symptoms, as heat, pulsation, paine. The heat of an *Erysipelas* is far greater than that of a *Phlegmon*, but the pulsation is much lesse; for as the heat of the blood is not so great, as that of *choler*, so it farre exceeds *choler* in quantity and thicknesse, which may cause compression and obstruction of the adjacent muscle.

For *Choler* easily dissipable by reason of its subtilty quickly vanishes, neither doth it suffer it selfe to be long contained in the empty spaces betweene the muscles; neither doth an *Erysipelas* agree with a *Phlegmon* in the propriety of the paine. For that of an *Erysipelas* is pricking and biting without tension, or heavinesse, yet the primitive, antecedent and conjunct causes are alike of both the tumors. Although an *Erysipelas* may be incident to all parts, yet principally it assailes the face, by reason of the rarity of the skin of that place, and the lightnesse of the cholericke humor flying upwards. It is ill when an *Erysipelas* comes upon a wound, or ulcer, and although it may come to suppuration, yet it is not good; for it shewes that there is obstruction by the admixture of a grosse humor, whence there is some danger of erosion in the parts next under the skin. Gal. lib. 2. ad Glanc. Hip. Apbo. 79 Sed. 7. Aph. 25 Sed. 6. Aph. 43. Sed. 3.

It is good when an *Erysipelas* comes from within outwards; but ill when from without it retires inward. But if an *Erysipelas* possesse the wombe it is deadly, and in like manner if it spread too far over the face, by reason of the sympathy of the membranes of the braine.

CHAP. XIII.

Of the cure of an *Erysipelas*.

IN the cure of an *Erysipelas* we must procure two things, to wit, evacuation and Refrigeration. But because there is more need of cooling, than in a *Phlegmon*, the cheefe scope must be for refrigeration. Which being done, the contained matter must be taken away and evacuated with moderately resolving medicines. We must doe foure things to attaine unto these forementioned ends. First of all we must appoint a convenient manner of Diet, in the use of the sixe things not naturall; that is, we must incrassate, refrigerate and moisten as much as the nature of the disease and patient will suffer, much more than in a *Phlegmon*; then we will evacuate the Antecedent matter, by opening a veine, and by medicines purging *choler*. And that by cutting the Cephalicke veine, if there be a portion of the blood mixed with *Choler*, if the *Erysipelas* possesse the face, and if it be spread much over it.

But if it shall invade another part, although it shall proceed of pure *choler*, *Phlebotomy* will not be so necessary, because the blood which is as a bridle to the *choler* being taken away, there may be danger, lest it become more fierce; yet if the body be plethoricke, it will be expedient to let blood, because this, as *Galen* teacheth, is oft times the cause of an *Erysipelas*. It will be expedient to give a clyster of refrigerating and humecting things before you open a veine; but it belongs to a learned and prudent

Gal. 16. Method.

4 Things to be performed in curing an Erysipelas.

In what Erysipelas it is convenient to let blood, in what not.

What topicke medicines are fit to be used in the beginning of an *Erysipelas*

prudent Physition to prescribe medicines, purging choler.

The third care must be taken for Topicke, or locall medicines, which in the beginning and encrease must be cold and moist, without any either drynes or astringion, because the more acride matter by use of astringent things being driven in, would ulcerate and fret the adjacent particle.

Galen and *Avicen* much commend this kinde of remedy; Take faire water ℥vj. of the sharpest Vinegar ℥j, make an Oxycrate, in which you may wet linnen clothes and apply to the affected part and the circumjacent places, & renew them often. Or R, *Succi solani, plantag. & semper vivi, an. ℥ij, aceti ℥℥, Mucaginis sem. Psyllij ℥ij, succi hyoscyami ℥j, Misce.* But if the *Erysipelas* be upon the face, you must use the medicine following.

R. *Vaguent. Ros. ℥iiij, succi plantagin. & semper vivi, an. ℥j. trochisc. de Camphora ℥℥, aceti parum;* let them be mixed together and make a liniment. But if the heate and paine be intolerable, we must come to narcoticke medicines. As, R *succi hyoscyami, solani, cicuta, an. ℥j. album. ovorum n. ij. aceti ℥℥, opij & Camphor. an. gra. 4 croci ℥℥, Mucaginis sem. psill. & sanigr. extracta in aq. ros. & plantag. an. ℥j, ol. de papau. ℥ij. fiat linimentum, addendo ung. refrigerantis Gal. camphor q. satis sit.* Yet we must not use such like medicines too long, lest they cause an extinction of the native heate and mortification of the part.

What caution must be had in the use of narcoticke medicines.

Resolving and strengthening medicines.

Wherefore such Narcoticke medicines must be used with regard of place, time and such other circumstances. Therefore we may three manner of wayes understand when to desist from using Narcoticke or stupefactive medicines. The first is when the Patient in the affected part feels not so much heat, pricking and paine, as before; The second is when the part feels more gentle to the touch than before; The third when the fiery and pallide colour begins by litle and litle to waxe livid and blacke; for then must we abstaine from Narcoticke, and use resolving and strengthening things, whereby the part may be revived and strengthened by recalling the Native heate; As R. *Farina hordei & Orobi, an. ℥ij farina sem. lini ℥j℥. coquantur in Hydromelite vel oxycrato, addendo pulv. rosarum & chamemal. an. ℥℥. ol. anethi & chamem. an. ℥j, fiat cataplasma.* Or you may use this following fomentation R. *Rad. Althea ℥ij, sol. malva, bis mal. pariet. al. sinthij, salvia, an. m. j. flor. chamem. meliloti, rosar. rub. an. m. ij. coquantur in aquis partibus vini & aqua, & fiat fons cum spongia.* After the fomentation you may apply an Emplaster of *Diachylon treatum*, or *Diapalma* dissolved in oile of chamomille and Melilote, and such other like. The fourth Intention which is of the correction of accidents, we will performe by these meanes which we mentioned in curing a Phlegmon, by varying the medications, according to the judgement of him which undertakes the cure.

CHAP. XIII.

Of the Herpes; that is Teaters, or Ringwormes, or such like.



What a Herpes is, what be the kinds thereof.

Gal. 2. ad Glauconem.

What the Herpes miliaris is. What the exedens.

Erpes is a tumor caused by pure choler separated from the rest of the humors, that is carryed by its naturall lightnesse and tenuitye even to the outer or scarfe skin, and is diffused over the surface thereof. *Galen* makes three sorts of this tumor. For if perfect choler of an indifferent substance, that is, not very thicke, cause this tumor, then the simple *Herpes* is generated, obtaining the name of the Genus; but if the humor be not so thin, but compounded with some small mixture of Phlegme, it will raise litle blisters over the skin like to the seeds of Millet, whence it was that the Ancients called this Tumor the *Herpes Miliaris*. But if it have any admixture of Melancholy, it will be an *Herpes exedens*, terrible by reason of the erosion or eating into the skin and muscles lying under it.

Three intentions in curing Herpes.

There are absolutely three intentions of curing; The first is to appointe a Diet just like that we mentioned in the cure of an *Erysipelas*; The second is to evacuate the antecedent cause, by medicines purging the peccant humor, for which purpose oftentimes

times clysters will suffice, especially if the patient be somewhat easie by nature, and if the urine flow according to your desire; for by this a great part of the humor may be carryed into the bladder; The third shall be to take away the conjunct cause by locall medicines ordained for the swelling and ulcer: Therefore the Chirurgion shall have regard to two things, that is, the resolving of the tumor, and the drying up of the ulcer, for every ulcer requires drying, which can never be attained unto, unlesse the swelling be taken away. Therefore because the chiefeest care must be to take away the Tumor, which unlesse it be performed there can be no hope to heale the ulcer, he shall lay this kinde of medicine to dissolve and dry, as *R. Cerusa & tuthie prepar. an. ʒij. ol. ros. & adipis capon. an. ʒij. corticis pini ussi, & loci, ʒss cera quantum satis, fiat unguentum.* Or *R. Farin. hordei & lent. an. ʒij, coquantur in decocto corticis mali granati, balauſt. plantag. addendo pulveris rosar. rub. absinth. an. ʒss. olei Myrtillor. & mellis com. an. ʒvj, fiat unguentum, ut artis est.* But for an *Herpes Miliaris* these must chiefly be used, *R. pulv. gallarum, malicory, balauſt. boli armeni an. ʒj. aqua ros. ʒiij, aceti acerrimi ʒj. axungie anser. & olei Myrtillor. an. ʒss, terebinth. ʒj fiat unguentum ad usum.* I have often found most certaine helpe in *unguentum emulatum cum Mercurio*, for it kills the pustules, and partly waists the humor contained in them. Yet if the ulcer, not yet neither yeelds, but every day diffuses it selfe further and further, you shall touch the edges and lipps thereof with some acride medicine, as *Aqua fortis*, oyle of Vitriole, or such like, for by this kinde of remedy, I have oft times healed fretting ulcers, which seemed altogether incurable.

A rule for healing ulcers conjoined with tumors.

The force of Unguentum emulatum cum Mercurio. Medicines fit for restraining eating and spreading ulcers.

CHAP. XV.

Of Feavers, which happen upon Erysipelous Tumors.



S Feavers sometimes happen upon Inflammations, and Erysipelaes, which favour of the humor whereof they proceed, that is, Choler. Therefore seeing it is peculiar to Choler, to move every third day, it is no marvaile if great Inflammations bring with them Tertian Feavers, or Agues, which have their fit every third day; for it is called an Intermittent Tertian which comes every other day.

A vulgar description of an intermitting Tertian feaver.

The Primitive causes in generall are strong exercises, especially in the hot Sunne, the use of heating, and drying either meats or medicines, great abstinence joyned with great labour, care, sorrow; the antecedent causes are the plenty of choler in the body, an hot and dry distemperature either of the whole body, or of the liver onely: the conjunct cause is the putrefaction of the Cholericke humor lying in some plenty without the greater vessels, in the habit of the body.

The causes of Tertian feavers.

The signes, a shivering or shivering like as when we have made water in a cold winter morning, a great pricking, stretching, or stiffnesse, as if there were pins thrust into us over all our bodies, by reason of the acrimony of the cholerick humor driven uncertainly & violently over all the body, & the sensible membranous & Nervous particles at the beginning of the fit; then presently the heate becomes acride, the Feaver kindled, like a fire in dry straw; the pulse is great, quicke and equall; the tongue dry; the urine yellowish, red and thin. The Symptomes are watchings, thirst, talking idly, anger, disquietnesse & tossing the body at the least noise or whispering. These Feavers are terminated by great sweats. They are incident to cholericke young men, such as are leane, & in Summer; after the fit oft times follow cholericke vomiting & yellowish stooles. After the fit there followes an absolute intermission retaining no reliques of the Feaver, untill the approach of the following fit, because all the cholericke matter by the force of that fit & nature is easily cast out of the body, by reason of its natural levity & facility; whereas in Quotidians there is no such thing, as which after the fit alwaies leave in the body a sense & feeling of a certaine inequality by reason of the stubbornesse of the Phlegmatick humor, & dulnesse to motion. The fit commonly uses to endure 4, 5, or 6 houres, although at sometime it may be extended to 8 or 10. This Feaver is ended at 7 fits, and usually is not dangerous, unlesse there be some error committed by the Physician, Patient, or such as attend him. Tertians in summer are shorter, in winter longer.

The signes of an intermitting Tertian.

The Symptomes,

Why Tertians have an absolute cessation of the feaver at the end of each fit.

Wherefore the beginning of the fit is accompanied with stiffnesse, or stretching.

the state with sweate, whereupon if the nose, lips or mouth breake forth into pimples or scabbes, it is a signe of the end of the Feaver, and of the power of nature which is able to drive the conjunct cause of the disease from the center to the habite of the body; yet these pimples appeare not in the declining of all Tertians, but onely then, when the Cholericke humor causing the Feaver shall reside in the stomacke, or is driven thither from some other part of the first region of the Liver. For hence the subtiler portion therof carryed by the continuation of the inner coate to the mouth and nose, by its acrimony easily causes pimples in these places. The cure is performed by Diet, and Pharmacy.

The Diet of
such as have
a Tertian.

When such as
have a tertian
may use wine,

The time of
feeding the
patient.

Therefore let the Diet be so ordered for the fixe things not naturall, that it may incline to refrigeration and humedtion, as much as the digestive faculty will permit, as Lettuce, Sorrell, Gourds, Cowcumbers, Mallowes, Barly Creames, Wine much alaid with water, thinne, small, and that sparingly and not before signes of concoction shall appeare in the urine; for at the beginning he may not use wine, nor in the declining, but with these conditions, which we have prescribed.

But for the time of feeding the patient, on that day the fit is expected, hee must eate nothing for three houres before the fit, lest the aguish heate lighting on such meats as yet crude, may corrupt and putresce them; whence the matter of the Feaver may be increased (because it is as proper to that heate to corrupt all things, as to the native to preserve and vindicate from putrefaction), the fit lengthened, and nature called away from the concoction and excretion of the Morbifick humor; yet wee may temper the severity of this law by having regard to the strength of the patient; for it will be convenient to feed a weake patient not onely before the fit, but also in the fit it selfe, but that onely sparingly, lest the strength should be too much impaired.

When to purge
the patient.

Now for Pharmacy; It must be considered, whether the strength of the Patient be sufficient, if the humors abound; for then you may prescribe *Diaprunum simplex*, *Cassia* newly extracted, the decoction of Violets, of Citrine Myrobalanes; Syrupes of Violets, Roses, of Pomegranats and Vineger. But if the powers of the Patient languish, hee must not onely not be purged, but also must not draw blood too plenteously, because Cholericke men soone faint, by reason of the facile and easie dissipation of the subtle humors and spirits; besides, such as are subject to tertian Feavers doe not commonly abound with blood, unlesse it be with Cholericke blood, which must rather be renewed, or amended by cooling and humedting things, than evacuated. Yea verily, when it is both commodious and necessary to evacuate the body, it may be attempted with far more safety by such things as worke by insensible transpiration, which provoke sweats, vomite or urine by reason of the subtilty of the Cholericke humor, than by any other. Also the frequent use of emollient glysters made with a decoction of Prunes, jujubes, Violets, branne and Barly, will profit much; If the patient fall into a *Delirium* or talke idly by reason of the heate and drynes of the head, with a particular excessse of the Cholericke humor, the head must be cooled by applying to the Temples and forehead and putting into the nose oyle of Violets, Roses, or womans milke. Let the feete and legs be bathed in faire and warme water, and the soles of the feet be anoynted with oyle of Violes and such like.

In the declining, a Bath made of the branches of Vines, the leaves of Willowes, Lettuce and other refrigerating things boyled in faire water, may be profitably used three houres after meat eaten sparingly.

When the time
is fit to use a
Bath.

But I would have you so to understand the Declination or declining not of one particular fit, but of the disease in generall, that the humors already concocted, allured to the skin by the warmnesse of the bath, may more easily and readily breathe forth: he which otherwise ordaines a bath at the beginning of the disease, will cause a constipation in the skin and habit of the body, by drawing thither the humors peradventure tough and grosse, no evacuation going before.

What kinds of
evacuations are
most fit in a
Tertian.

Also it will be good after generall purgations to cause sweate by drinking White wine thinne and well tempered with water; but urine by a decoction of Smallage and Dill; Certainly sweate is very laudable in every putride Feaver,

Feaver, because it evacuates the conjunct matter of the disease, but chiefly in a Tertian, by reason that choler by its inbred levity easily takes that way, and by its subtilty is easily resolved into sweat. But that the sweate may be laudable, it is fit it be upon a criticall day, and be foreshewed by signes of concoction agreeable to the time and manner of the disease. Sweats when as they flow more slowly are forwarded by things taken inwardly and applyed outwardly; by things taken inwardly, as with white wine, with a decoction of Figgs, Raifons stoned, grasse roots and the like opening things; but by things outwardly applyed, as sponges dipped in a decoction of hot herbes (as Rosmary, Time, Lavander, Marjerome and the like) applyed to the Groines, Armeholes, and ridge of the backe.

Sudorificks.

You may for the same purpose, fill two Swines bladders with the same decoction, or else stone bottles, and put them to the feete, sides, and betweene the thighes. Then let this be the bound of sweating, when the patient begins to waxe cold, that is, when the sweate feelles no more hote, but cold.

But by the consent of all, blood must not be letten after the third fit, but presently at the beginning of the Feaver, according to the opinion and prescription of *Galen*; for seeing this Feaver for the most part is terminated at seven fits, if you stay untill the third fit be past, the Feaver will now be comē to its state; but *Hippocrates* forbide us to move any thing in the state, least nature then busied in concocting the disease, be called from its begun enterprise.

When blood must be let.

Aphor. 29. Sect. 2.

CHAP. XVI.

Of an Oedema or cold Phlegmaticke Tumor.



hitherto wee have treated of hote Tumors, now wee must speake of cold; Cold Tumors are onely two, an *Oedema*, and a *Scirrhus*; And for all that *Hippocrates* and the Ancients used the word *Oedema* for all sorts of Tumors in generall; yet by *Galen* and these Physitions which succeeded him, it hath beene drawne from that large and generall signification, to a more strait and speciall, onely to designe a certaine species, or kinde of Tumor.

Gal. lib. de tumor. prater natur.

Wherefore an *Oedema* is a soft, laxe and painlesse Tumor, caused by collection of a phlegmaticke humor.

What an Oedema is.

The Ancients made eight differences of Tumors proceeding of Phlegme. The first they termed a true and lawfull *Oedema* proceeding from naturall Phlegme; from unnaturall Phlegme by admixtion of another humor they would have three sorts of Tumors to arise, as that by mixture of blood, should be made an *Oedema Phlegmonodes*, and so of the rest.

The differences of Oedemas.

Besides, when they perceived unnaturall Phlegme either puffed up by flatulency, or to flow with a waterish moisture, they called some *Oedemaes* flatulent, others waterish; but also when they saw this same Phlegme often to turne into a certaine Plaister-like substance, they thought that hence proceeded another kinde of *Oedema*, which they expressed one while by the name of *Atheroma*, another while by *Steatomia*, and sometime by *Melicerides*, as lastly they called that kind of *Oedema* which is caused by putride and corrupt flegme, *Scrophula*. For we must observe that Phlegme sometimes is naturall, and offends onely in quantity, whence the true *Oedema* proceeds; otherwhiles it is not naturall; and it becomes not naturall, either by admixtion of a strange substance, as blood, Choler or Melancholy, whence arise the three kinds of *Oedema's* noted formerly by the way; or by the putrednesse and corruption of its proper substance, whence the *Struma* and *Scrophula* proceed; or by concretion, whence kernells and all kinds of VVens, *Ganglia* and knots; or by resolution, whence all flatulent and waterish Tumors, as the *Hydrocele*, *Pneumatocle* and all kinds of Dropsies.

By how many waies Phlegme becomes not naturall.

The causes of all *Oedema's* are the defluxion of a Phlegmaticke or flatulent humor

The Causes.

humor into any part, or the congestion of the same made by litle & litle in any part, by reason of the imbecillity thereof in concocting the nourishment, and expelling the excrement.

The signes.

The prognosticks.

How Oedema's are terminated.

The intentions of curing Oedema's.

The diet.

Exercise.

What to be observed in the use of venery.

6. Epid. sect. 58
lib. 23.

Lib. 2. ad
Glauc. cap. 3.
A rowler.

The signes are a colour whitish and like unto the skinnē, a soft Tumor, rare and laxe by reason of the plentiful moisture with which it abounds, and without paine, by reason this humor inferres no sense of heate nor manifest cold; when you presse it with your finger the print thereof remaines; because of the grossenesse of the humor and slownesse to motion. *Oedema's* breed rather in winter than in the summer, because winter is fitter to heape up Phlegme; they chiefly possesse the Nervous and Glandulous parts, because they are bloodlesse, and so cold and more fit by reason of their loosenesse to receive a defluxion; for the same cause bodies full of ill humors, ancient, and not exercised, are chiefly troubled with this kinde of Tumor.

An *Oedema* is terminated sometimes by resolution, but oftner by concretion, seldomer by suppuration, by reason of the small quantity of heate in that humor.

A Symptomatically *Oedema*, as that which followes upon a Dropsie or Consumption, admits no cure unlesse the disease be first taken away.

The generall cure is placed in two things, that is, in evacuation of the conjunct matter, prohibiting the generation of the antecedent. Wee attaine to both chiefly by foure meanes.

The first truly by ordaining a fit manner of living and prescribing moderation in the use of the fixe things not naturall. Wherefore we must make choyse of such aire as is hote, dry and subtle; wee must prescribe wine of a middle nature for his drinke; let the bread be well baked; let meates be appointed which may generate good blood, and these rather roasted than boyled. Let all fruites be forbidden, as also brothes and milke-meates; let him eate such fish as are taken in stony rivers; the Patient shall observe mediocrity in feeding, but principally sobriety in drinking, for feare of crudities; After meat let him use digestive powders, or common drige powder; if his belly be not naturally loose let it be made so by arte.

Let the Patient use exercise before meate, so by litle and litle to spend this humor, and restore the native heate. Let him sleepe litle, because much sleepe breedeth cold humors; let him avoyde grieffe and sadnesse. And if he be of a weake body, let him abstaine from venery, lest by another weakening by the use of venery added to his present infirmity, he fall into an uncureable coldnesse, from whence a greater measure of crudity will arise. Otherwise, if the body be strong and lusty, by such exercises and the moderate use of venery it will be the more dried and heated.

For so that sentence of *Hippocrates* is to be understood; That venery is a cure for Phlegmaticke diseases, as *Galen* in his commentaries tells us. The Physitian may performe the second intention by turning his counsell to that part, from whence the spring of this Phlegmaticke humour flowes. For if the infirmity arise from the stomacke, or from any other part, the part from whence it comes must be strengthened; if from the whole habite of the body, let attenuating, penetrating and opening medicines be prescribed. Wee performe the third intention by evacuating the humor impact in the part with locall medicines varied according to the foure times of the Tumor.

For *Galen* in the beginning and encrease prescribeth a fomentation of *Oxyratum* used with a sponge. But ifso be that the *Oedema* be upon the Arme or Leg, a repelling rowler is very good, that is, such an one as is brought from below upwards. So these medicines following are very fit for the same purpose, R. *Lixivij ex cineribus sarmentorum, & caulium, an. ℥iij. Tartari & Aluminis an. ℥℥, aceti ℥ij.* mixe all together and make a decoction, wherein wet sponges and foment the place. Also you may use the following Cataplasme, R. *farina hordei ℥iij. coquantur in Lixivio communi, addendo pulveris nucis cupressi, corticum granatorum, balausti. an. ℥j. Myrrha, Aloes, alum. an. ℥℥, olei Myrrill. ℥ij, fiat Cataplasma.* In the state and declination you must use

use drying and resolving medicines, as *R. Nucum cupressi, granat. sumach, balausti, an. ʒj. Salvia, organ. calament. Hyssopi, melissa an. m. j. absinthij, plantag. caude. equ. rapsi. barb. centinod. an. m. ꝑ. alumi. tartar. & salis com. an. ʒj. coquantur cum lixivio*; foment it with a spung, then presently apply this following Cataplasme. *R. Rad. Brionia ʒij. absinth. plantag. centin. chamem. meliloti, puleg. an. m. ꝑ. coquantur in hydromelise, pistentur, traycian-tur, addendo pulveris ros. rub. chamem. melil. an. ʒj. fiat Cataplasma.*

Lastly, you may here with good successe use resolving emplaisters and ointments, first heating or chafing the part by friction or fomentations aswell moist as dry; otherwise emplaisters will scarcely doe their duty, by reason of the great coldnesse of the part, being not sufficient of it selfe to assimilate the nourishment, or to expell the superfluous and unprofitable humor. Let a fomentation be made with white wine, in which Sage, Rosmary, Time, Lavander, Chamomile and Melilote flowers, red Roses, Orris roots, *Stachos* and such like have beene boyled, with a litle Vineger added thereunto. Quench hot bricke in the same decoction, and apply them wrapped in linnen clothes to the affected part, for so a vapour will breathe forth which hath an attenuating, pearcing, resolving and strengthening faculty. But you may in stead of the bricks fitly apply Hoggs or Oxe bladders, filled halfe full with the foresaid decoction, and that hot. The frictions must be made with hot linnen clothes, for so the native heate together with the blood and spirits is recalled to the part, and fuliginous humors contained under the skinn are resolved, whereby the strength of the part is in some sort recovered.

What caution
to be had in
application of
Emplaisters.

CHAP. XVII.

Of the cure of flatulent and waterish Tumors.

Formerly declared that not onely flatulent and waterish Tumors were comprehended under this word *Oedema*, but also such as are bred of congealed Phlegme, as *Atheromata, Steatomata* and *Melicerides*. Flatulent or windy Tumors are caused by vapour and winde kept in or contained sometimes under the skinn, somewhiles under the membranes, as the *Periostium* and *pericranium*, whereupon ensues cruell torment by reason of the distention of these parts which are endued with most exquisite sense. Sometimes the Entrailles, as the stomacke and Guts are swollen and stretched out with winde, as in a Tympany.

In what places
flatulencies
may be gathered.

They in this differ from a true and legitimate *Oedema*, that when you lay your finger upon them and take it off againe, there remaines no signe of the pressure thereof, because they are distent by vapour and not by humor, for the vapour being pressed returnes speedily againe, as you may perceive by balles or bladders filled with winde.

In what flatu-
lent tumors
differ from a
true *Oedema*.

The cause of such Tumors is the weakenesse of the native heate, not being able easily to resolve and waste the Phlegme by which the windy Tumors are raised, for so the morning Sunne (which in some sort resembles our native heate) cannot resolve the mists disperfed in the aire, which at noone it easily resolves into pure aire. Almost after the same manner our weaker heate stirs up vapours from that flegme it could not dissolue, which vapours are the matter of inflations, or swellings. But oft times although the native heate be sufficiently powerfull, yet because the humor lyeth deepe, or is kept in by the thicknesse of some membrane, tendon or Ligament, the stirred up vapour cannot exhale, whereby it comes to passe, that increased by litle and litle it causes a Tumor.

The causes of
flatulent Tu-
mors.

The signes of such a Tumor are a certaine renitency or resistance perceived by pressing it with your finger, and sometimes a noise as if you smit upon a drum,

The signes of
such Tumors.

especially if much winde be contained therein, such as is often gathered together in the hollownesse of the belly, and in the spaces betweene the larger muscles. The Tumor is neither red nor hot, but rather cold and white as in an *Oedema*. It often possesseth the joints, and especially the knees, and it is very difficult to be resolved. If such flatulency be gathered together in the Guts, it causeth the winde Collicke, in which sometimes the distention is so great that death ensues by reason of the renting or tearing the coats of the Guts.

CHAP. XVIII.

Of the cure of a flatulent and waterish Tumor.

Diet.
Things
strengthening
the parts,

Medicines evacuating the
conjunct matter.

Galen's fomentation.

Corroborating medicines

The signes of
a waterish
Tumor.

I shall chiefly and principally cure flatulent and waterish tumors by three meanes. First by the same diet which wee prescribed in an *Oedema*; then by strengthening the parts appointed for concoction, as the stomacke & Liver, chiefly by the temperate use of Aromaticke things as *Diacuminum*, *Diacalamentum*, *Aromaticum caryophyllatum*, *Aromaticum Rosatum*; and the like, to be prescribed according to good liking of the Physitian which oversees the cure; lastly by taking away of the conjunct matter by hot, drying and attenuating medicines which they call Carminative, that so the part being rarified the humor and flatulency therein contained may be discussed and dissipated. But remedies of this nature must be varied according to the variety of the parts; for some things are fit to be applied to the stomacke, others to the Guts, others to the joynts, and others to the fleshy parts; for the Collicke you must inject carminative glisters, let resolving *Sacculi* or Baggs be applyed, and cupping Glasses fastened to the Navel; if an outward part be affected, we use fomentations, liniments, chiefly if paine torment; as also Cataplasmes and Emplaisters, as *R. Florum chamam. melil. roris. marini, rosar. rub. an. p. j. absinth. hyssopi, an. m. ij.* let them be boiled in Lye, adding a litle vinegar for a fomentation to be used with sponges.

Galen foment the part with Rose-vinegar and a litle salt put thereto, and would have a sponge dipped therein to lye somewhat long upon the part. *℞. Olei chamam. aneth. rut. & liliorum, an. ℥ss, cera alba ℥vj; aq. vite ℥j,* let them all be mixed together and make a liniment, with which anoint the part after the fomentation. *℞. Farina fabar. orobi, an. ℥ij, coquantur in decocto pulegij, origani, calamentum. salvia, addita pulverum chamam. & melilot. an. m. ss. fursur. farina fab. & orobi, an. ℥ij, coquantur cum lixivio communi, addendo terebinth. ℥ij, oleor. aneth. & rut. an. ℥ij;* make an emplaister for the foresaid use.

The emplaister of *Vigo* with Mercury, and without is very good for the same purpose. But you must note, that such medicines must be applied to the part actually hot, and the same heat must be contained and renewed by putting about it linnen clothes, bricks, bottles and such like hot things.

The Humor and flatulency which were kept shut up in the part being resolved, the part must be strengthened, lest now and then it receive or generate the like matter. That may be done by the following fomentation and cataplasme. *℞. Nucum cupressi, corticum granat. sumach. berberis, balauft. an. ℥j, cauda equin. arnogloss. rupsi barb. absinth. salvia, roris. lavender. an. m. ss. flor. chamam. melil. rosar. anthos, an. p. j. alum. salis com. an. ℥j, bulliant omnia in aquis partibus aqua fabrorum & vini austeri,* make bagges for a fomentation, or use the decoction for the same purpose with a sponge. *℞. Farina fab. hordei & lupin. an. ℥ij. terebinth. com. ℥ij, pulver. radicis iros, mastic. an. ℥ss, mellis com. ℥ijss,* of the foresaid decoction as much as shall suffice, so to make a cataplasme to the forme of a poultice liquid enough, let it be applied hot to the affected part having used the fomentation before.

The signes of a waterish tumor are the same as of a flatulent; but over and besides it shines, and at the pressing with your fingers, there is hard a noyse or murmur as of a bladder halfe filled with water.

Therefore

Therefore the waterish tumor if it shall not yeeld to the forementioned resolving medicines, the way must be opened with an incision knife, after the same manner, as we mentioned in a Phlegmon. For often times this kind of remedy must be necessarily used, not onely by reason of the contumacie of the humor which gives no place to the resolving medicines, but also because it is shut up in its proper cyst or bagge, the thicknesse of which frustrates the force of the resolving medicines, neither suffers it to penetrate into the humor. As I some yeares agoe found by experience in a maid of 7. yeares old; which troubled with a *Hydrocele* or waterish rupture, to whom when I had rashly applyed to dissolve it resolving medicines of all sorts, at length I was forced to open it with my knife; not onely to evacuate the contained matter, but also that I might plucke out the bagge, which unlesse it were cut up by the roote, would be a meane to cause a relapse, *John Altine* doctor of Physicke called me to this businesse. *James Guilemeau* the Kings Chirurgion oversaw the cure.

Why a waterish tumor must be opened with an instrument;

A History.

CHAP. XIX.

Of an *Atheroma*, *Steatoma*, and *Meliceris*.

Although these Tumors may be thought comprehended under one genus with other *Oedematous* tumors, yet they differ as thus; that is, their matter is shut up in its bladder or bagge, as it were in a peculiar cell. But their difference amongst themselves is thus; the matter of the *Steatoma* as the name signifieth, is like unto Tallow [for *Στεας* in Greeke signifieth Tallow, or seame] yet it oft times is found stuffed with other divers hard bodies, stony, bony or callous like unto the claws of an hen. For *Philoxenus* reports that he sometimes saw flies in a *Steatoma* at the opening thereof, and such other like things wholly dissenting from the common matter of Tumors. The matter contained in an *Atheroma* is like to pappe, with which they feede little Children. A *Meliceris* containes matter resembling honey in colour and consistence; these Tumors appeare and rise without any Inflammation going before them. Thus you shall know these Tumors; a *Steatoma* is harder than the other two, neither yeelds it to the pressure of your finger, but when it once yeelds, it doth not speedily and easily returne to its former figure, because the matter is more grosse; It is of the same colour as the skin, without paine, and of a longish figure. The *Meliceris* yeelds to the touch, as being a loose and soft body, and as it is easily disposed and diffused, so it quickly returnes to its former place and Tumor. It differs from the *Atheroma* in figure and substance. For it is more globous and of a subtiler and more shining matter, besides also it takes up a large space, and is more obsequious to the touch, and for the rest, without paine. As for the manual operation of the Chirurgion in their cure, it seemes to bee of no great consequence of what sort the matter is, whether resembling tallow, honey, or pappe, for there is one simple manner of operation, which is, that you plucke away the contained humor, as also the receptacle in which it is contained. Yet you must note such Tumors, sometimes as it were hanging in the surface of the skin, are easily to be mooved this way and that way; but other some againe deeper fastned firmly cohere with the adjacent bodies, and these require an exquisite hand and also industry for feare of a great flux of blood and convulsion by cutting a veine. There are many other kinds of Tumors, as the *Testudo* or Mole, the *Nata*, the *Glandula*, *Nodus*, *Borium*, *Lupia*, which as in matter (for they are all of a thicke, clammy and viscous Phlegmaticke humor) so also in kinde they agree with an *Atheroma*, *Steatoma* and *Meliceris*. But also in these for the most part, when they are opened, you may see bodies of all sorts farre different from the common matter of Tumors, as stones, chalke, sande, coales, snails, strawes, or awnes of Corne, hey, horne, haire, flesh both hard and spongiouse, gristles, bones, whole creatures as well living as dead.

In what an *Atheroma*, *Steatoma*, and *Meliceris* differ.

Of Chirurgery to be used to these Tumors.

What the cause may be, that wee sometimes finde insects in these Tumors.

The generation of which things (by the corruption & alteration of humors) shal not make us much to admire it, if we consider, that as nature of all the seedes & elements

of

of the whole great world, hath made man the Microcosme or little world, that he might be, as it were, the lively Image of that greater world; so in him, it being never idle in us, would have all the kindes of all motions and actions to shew themselves, as long as matter for generation is not wanting. But because there is little, or rather no mention of these tumors amongst the ancients, we will briefly shew the opinions of the later Writers concerning them.

What the *Testudo* is.

Now they say, the *Testudo* is a tumor contrary to nature, soft, diffused, or vaulted, or arched like a Tortois, sometimes it arises in the head in forme of a Mole, and then it is called a Mole.

What the *Nata* is.

The *Nata* is a great and fleshy tumor, not in shape unlike a Melon, or rather the flesh of a mans buttockes, whence it may seeme to have had the name, unless wee had rather say it had it, because it more usually breeds upon the buttocks, than upon any other part of the body.

What a *Glandula* is.

The *Glandula* takes its denomination from an Acorne, called *Glaus* in Latine, the which it somewhat resembles in the compasse and forme of the tumor; or else because it most commonly breeds in the Glandules, or Emunctories of mans body.

What *Nodus*.

The *Nodus* or knot, is a round tumor, hard and immoveable, named from a rope tied on a knot.

Guido Cauliacensis affirms knots commonly to grow in nervous bodies; but at this time they more usually arise on the bones of such as have the French disease.

CHAP. XX.

Of the cure of *Lupia*, that is, *Wens*, or *Ganglions*.

What a *Ganglion* is.



Wen or *Ganglion* is a tumor sometimes hard, sometimes soft, yet alwayes round, using to breed in dry, hard, and nervous parts. And seeing that some of the tumors mentioned before in the former Chapter, sticke immoveable to the part to which they grow, because they are contained in no cyste, or bag; other some are moved up and down by the touch of your fingers, because they are contained in a bag or bladder, it commonly comes to passe that *Wens* have their bladder wherein to containe them, and therefore we thinke fit, the rather more freely, and particularly to treat of their cure, because they are more difficultly cured, especially where they are inveterate and of long standing.

The causes.

The primitive causes of these are dull blowes, fallings from high places, straines, and other such like occasions. But the antecedent and conjunct causes are the same with those of an *Atheroma*, *Meliceris* and *Steatoma*.

Signes.

The description formerly set downe, will furnish you with the signes by which you may know when they are present; certainly from very small beginnings they grow by little and little to a great bignesse, in the space of fixe or seaven yeares, some of them yeeld much to the touch, and almost all of them are without paine.

Their cure at the beginning.

You may hinder such as are beginning and first growing, from encrease by somewhat a strong and frequent rubbing with your fingers. For so their bagge or bladder, together with the skinne waxe thin, and the contained humor growes hot, is attenuated and resolved. But if so you nothing prevaile, you must lie upon them with your whole hand, or a flatted peece of wood as heavy as you can, untill such time as the cyste or bagge be broken by your impression; Then apply and strongly binde unto it a plate of lead, rubbed over with Quick-silver; for I have many times found by experience, that it hath a wonderfull force to resolve and waste the subject humor.

Plates of lead rubbed with Quick-silver.

A resolving plaister.

But if the *Wen* be in such a place in which you can make no strong impression, as in the face, chest, belly, and throat, let there be applied an Emplaister which hath a resolving force, such as this following hath; R, *gummi ammon. bdely. galban. an. ʒiij, liquefiant in aceto, & trajciansur per setaceum, addendo olei liliorum & lauri, an. ʒj, aqu. vite parum, pulveri, ireos, salis ammon. sulphur. vivi, vitrioli romani, an ʒʒ*; let them beall incorporated together, and make an Emplaister according to Art. But if the tumor

tumor cannot be thus resolved, it must be opened with a knife or cautery. And after the Eschar is removed, and the bagge waisted by *Ægyptiacum*, Mercury, and the like, the ulcer must be cleansed, replenished with flesh, and cicatrized.

Things to
waist or con-
sume the bag.

Sometimes Wens grow to so great a masse, that they cannot be cured by the described remedies, wherefore they must be taken away by the roote, by your hand and instrument, if so be that there be no danger by reason of their greatnesse, and so that they adhere not too closely to the adjacent parts, and if they be not too nigh to the greater veines and arteries; for it will be better in such a cause to let them alone. This shal be your way to cut the off, or take them away. A smal incision must be made even to the bladder, or bag, by which thrust in a probe of a fingers thicknes, hollowed in the midst, round at the end, and as long as neede shall require; then draw it many times about betweene the skinne and the bagge, even to the roote of the Wen, that so the skinne may be devided long wayes, then it will be requisite to make another incision overthwarte, so that they may intersect each other like a crosse; then presently draw the skinne from the bladder, from the corners of the Wen, towards the roote, and that with your finger covered with a fine linnen cloath, or else with a Razor if neede require.

The manner
to take away
Wens.

But you must observe that in a Wen there are alwayes certaine vessels, which are small in the beginning, but much encreased in processe of time, according to the encrease of the Wen, whereof they are as it were the rootes; wherefore if any *Hæmorrhagic* or fluxe of blood happen, let it be stopped by binding the vessels at their heads and roots, or make a strait ligature at the roots of the Wen, with a peece of whipcord, or with a manytimes doubled thred, and let the ends hang forth untill it fall away of its owne accord. Neither will it be sufficient to have cut away all this tumor, but also it will be fit to cut away portion of the skinne, wherewith the tumor was covered, and onely to leave so much as shall suffice to cover the part, then with a needle and threed draw together the lips of the incision, but in the interim let tents be put into the bottome of the ulcer untill it be perfectly censed, and the rest of the cure be workemanlike performed, even to the cicatrizing thereof.

The Chirurgeon *Collo* and I using this method, in the presence of Master Dr. *Vig-*
lanus the Kings Physition, tooke away a Wen from *Martiall Colard*, the Major of
Buron; it hanged at his necke, as bigge as a mans head, and it weighed eight pounds;
which made it so troublesome and burdensome to him, that he was forced to carry
it bound up in a towell, as in a scrip.

A History.

Verily if these kinde of tumors have a slender roote and broade top, they must be straitly tied and so cut off. But it is very difficult and full of dangerous chance to take away such Wens as are seated in the necke, neare unto the Iugular veines, these under the armeholes, in the groines, and such as are under the ham; by reason of the deadly force of such symptomes, as may thence arise. We can onely conjecture, not certainly say what kind of matter may be contained in them. We can onely know of what sort it is, when by incision it is presented to our sight. Yet in such as are very hard and doe much resist the touch, there are often found matters, which in consistence may be resembled to little stones, or pebles.

What Wens
to be cured by
ligature.
Which dange-
rous to cure.

I being on a time called to open the body of a great Lady, found in one of her breasts a body which might equall the bignesse of an Hens egge, hard, and compact like a rough peble; it was held, whilst she lived, both by the Physitions and Chirurgions to be a *Cancer*, because this hardnesse was very painefull to her, when it was but gently pressed downe.

A History.

But also some few yeares ago, I being called to the cure of a very honest woman, which was troubled with the same disease, strongly withstood the Physitions and Chirurgions affirming it to be a *Cancer*, for the tumor had taken no deepe roote, the habite of the part was not changed from the native colour, the veines about it were not swollen, neither was there any other convincing signe of a *Cancer*. For this same woman had her courses at their due and usuall time, and was well liking, and had a good colour in her face and body, was free from all sort of paine, unlesse when you pressed downe the part affected. Besides thenceforward the tumor grew not at all; no other evill accident befell her, yea verily she lives merrily, and well both in body and minde.

The matter of
a Wen is
sometimes tan-
ken for a *Can-*
cer.

Another His-
tory.

How you may
know a Wen
from a *Cancer*.

CHAP. XXI.

Of a Ganglion more particularly so called.

What a Ganglion properly so called is,

The causes.

What Ganglia may not be cured with iron Instruments.

Here are also certaine small tumors of the kinde of *Lupia* or Wens, which grow on diverse parts of the body, but chiefly on the wrists of the hands, and ankles of the feete, being called by a more particular name *Ganglia*; they appeare on the top of the skinn, neither doe they ever lie deepe. The cause of them is either the imbecilitie of a Nerve or Tendon got by wrestling, extension, a blow, labour, or other such like cause. Through which occasion the alimentary juyce which flowed to these parts, seeing it can neither be concocted, nor assimilated into the proper substance, is converted into an humor of the like nature cold, and grosse; which in continuance of time heaping it selfe up by little and little about the fibers, and the very substance of the tendon, concretes into a tumor.

It is not fit to use any iron instrument to these *Ganglia* which possesse the tendons and joints, but onely apply *Ammoniacum* and *Galbanum* dissolved in Vinegar and *Aqua vite*: as *R. gummi ammon. & sagapeni in aqua vite dissolutorum, ana. ʒj. coquantur super cineres calidos ad formam emplastri, sub finem adde sulphuris vivi subtiliter pulverisati. ʒß, fiat empl. ad usum.* Also the Emplaster of *Vigo* with double *Mercury* would be good for the same purpose.

The tumor softened by these remedies, must be wrought, rubbed, or pressed, so long, untill the bladder or bagge be broken under your fingers, which I have divers times done; then it will be expedient presently to apply and binde hard thereunto a plate of lead rubbed with Quicksilver, which may waste and consume the remainder of the tumor.

Sometimes there are *Ganglia* seene hanging by a small roote, as it were a string; wherefore they must be tied with a string at the roote, and every day twitched harder and harder, till such time as they fall off. The rest of the cure may be easily performed by the common rules of Art.

CHAP. XXII.

Of the Strumæ or Scrophulæ, that is, the Kings-Evill.

What the Scrophula or Kings-Evill is.

Their materia all cause. How they differ from other glandulous tumors.



The *Scrophula* are oedematous tumors arising in the glandulous parts, as the breasts, armpoles, groines, but chiefly in the glandules of the neck. They appeare either one or many, according to the quantity of that matter from whence they proceede, commonly contained in their proper cyste, or bagge, as *Atheromæ*, *Steatomæ*, and *Melicerides* are.

They are made of a grosse, cold, viscid, and phlegmaticke matter with some admixture of melancholy. They differ from other glandulous tumors; first in number, for most usually there appeare many of them united together, springing from somewhat a deeper roote than glandulous tumors doe; some of them are moveable, other some woven with the neighbouring nerves, remaining unremoveable.

Ganglia appeare fewer in number, and are without paine; but *Scrophula* oftentimes are painefull, especially when they waxe hot by putrefaction; so that sometimes they degenerate into cancerous ulcers, not to be touched by instruments, nor acride medicines.

Phlegmaticke, Melancholike, and gluttonous persons, and such as are accustomed to feede on cold and moist nourishments, as fish and cold water, and leade a sedentarie and idle life, are subject to the *Scrophula*. They are cured by a most slender diet, for so the native heate by want of nourishment turned upon the materiall cause of such like tumors, waste it.

Their cure by diet.

And

And they are cured by purging of the superfluous humors, and also by application of emollient resolving, and suppurative topicke medicines, after this following manner. R, *Mucaginis alth. sanogr. & sicuum ping. an. ʒij, olei liliorum, & chamam. an. ʒij, pinguedinis anseris & axungie porci ʒʒ, Terebinth. Ven. ʒʒ, ammoniaci, & galbani in aceto dissolutorum an. ʒij, cere nove quantum satis, fiat cerotum secundum artem ad modum diachyli magni.*

Emollient and resolving medicines.

The ointment for the French disease, and the Emplaister of *Vigo* with *Mercury*, are excellent for this purpose, especially if we continue so long, untill the Patient come to Salivation, for so Nature will disburden it selfe of the humor, generating the *Scrophule*, which I have sometimes tried with happy successe. R, *Emplastri diachyl. alb. & mag. ceroti & sopi descriptionis Philagri, ana. ʒij. Terebinth. clara ʒj, olei liliorum parum, fiat emplastrum satis molle.* But if the *Scrophule* cannot by this meanes be resolved, but as it oft times happens, tend to suppuration, you must use suppuratives, as R, *rad. alth. & liliorum, an. ʒij, coquantur in aqua communi, pistentur, trajecitis adde caput alliorum sub cineribus coctorum ʒij, olei liliorum, & ping. anseris & anat. an. ʒʒ, farina seminis lini quantum satis, formetur cataplasma.*

Suppuratives.

Here we must admonish the Chirurgeon, that he open not the *Scrophule* before that all the contained humor be fully and perfectly turned into *pus* or matter; otherwise the residue of the humor will remaine crude, and will scarce in a long time be brought to maturation; which precept must be principally observed in the *Scrophule*, and also sometimes in other abscesses, which come to suppuration. For we must not as soone as any portion of the contained humors appears converted into *pus*, procure and hasten the apertion. For that portion of the suppurated humor, causes the rest sooner to turne into *pus*, which you may observe in inanimate bodies. For fruits which begin to perish and rot, unless we presently cut away the putrifying part, the residue quickly becomes rotten; there is also another reason; The native heate is the efficient cause of suppuration; it therefore (the sore being opened) diminished and weakened by reason of the dissipation of the spirits, evacuated together with the humor, will cause the remaining portion of the humor, not to suppurate, or that very hardly, and with much difficulty. Yet if the tumified part be subject, by its owne nature, to corruption and putrefaction, as the fundament; if the contained matter be malignant, or criticall, it will be farre better to hasten the apertion.

A note to be observed in opening Scrophulous tumors.

Naturall heate the cause of suppuration.

There is also another way of curing the *Scrophule*, which is performed by the hand. For such as are in the necke, and have no deepe roots, by making incision through the skin, are pulled and cut away from these parts with which they were entangled. But in the performance of this worke, wee take speciall care, that we doe not violate or hurt with our instrument, the jugular veines, the sleepey arteries, or recurrent nerves. If at any time there be danger of any great efflux of blood, after they are plucked from the skn, they must be tied at their roots, by thrusting through a needle and thred, and then binding the thred strait on both sides, that so bound they fall off by themselves by little and little without any danger. The remainder of the cure may be performed according to the common rules of Art.

The Chirurgical manner of curing Scrophula.

CHAP. XXIII.

Of the Fever which happens upon an cedematous Tumor.



AVING shewed all the differences of cedematous tumors, it remaines that we briefly treat of the Symptomatical feaver, which is sometimes seene to happen upon them. This therefore retaining the motion of the humor by which it is made, is commonly of their kinde, which they name Intermitting Quotidians. Now the fit of a Quotidian comes every day, and in that repetition continues the space of eightene houres; the residue of the day it hath manifest intermission.

How an intermitting Quotidian happens upon cedematous tumors.

The cause of a Quotidian fea.

The primitive causes of this feaver are, the coldnesse and humidity of the aire encompassing

compassing us, the long use of cold meates and drinckes, and of all such things as are easily corrupted, as Summer fruites, crude fishes, and lastly, the omission of our accustomed exercise.

The antecedent causes are a great repletion of tumors, and these especially phlegmaticke. The conjunct cause, is phlegme putrefying in the habite of the body, and first region thereof without the greater veines.

The Signes

The signes of this feaver are drawne from three things; as first naturall; for this Feaver or Ague chiefly seizes upon these which which are of a cold and moist temper, as Old-men, Women, Children, Eunuches, because they have abundance of phlegme; and it invades Old-men by its owne nature, because their native heate being weake, they cannot convert their meates, then taken in a small quantity, into laudable bloud, and the substance of the parts. But it takes children by accident, not of its selfe, and the owne nature, for children are hot and moist; but by reason of their voracitie, or greedinesse, and their violent, inordinate, and continuall motion after their plentifull feeding, they heape up a great quantity of crude humors fit matter for this feaver; whereby it comes to passe, that fat children are chiefly troubled with this kinde of feaver, because they have the passages of their bodies strait and stopped; or because they are subject to Wormes, they are troubled with paine, by corruption of their meate; whence ariseth a hot distemper by putrefaction, and the elevation of putride vapours, by which the heart being molested, is easily taken by this kinde of feaver.

How children come to be subject to Quotidian feavers.

From things not naturall, the signes of this feaver are thus drawne. It chiefly takes one in Winter, and the Spring, in a cold and moist Region, in a sedentary and idle life, by the use of meates, not onely cold and moist, but also hot and dry, if they be devoured in such plenty, that they overwhelme the native heate.

How phlegmaticke humors happen to be generated by hot and dry meats.

For thus wine, although it be by faculty and nature, hot and dry, yet taken too immoderately, it accumulates phlegmaticke humors, and causes cold diseases. Therefore drunkenness, gluttony, crudity, bathes, and exercises presently after meate, being they draw the meats as yet crude into the body and veines, and to conclude, all things causing much phlegme in us, may beget a Quotidian feaver. But by things contrary to nature, because this feaver usually followes cold diseases, the Center, Circumference, and Habit of the body being refrigerated.

The Symptomes of quotidian.

The symptomes of this feaver are, the paine of the mouth of the stomacke, because that phlegme is commonly heaped up in this place, whence followes a vomiting, or casting up of phlegme; the face lookes pale, and the mouth is moist without any thirst, often times in the fit it selfe; because the stomacke flowing with phlegme, the watery and thinner portion thereof continually flowes up into the mouth and tongue, by the continuitie of the inner coate of the ventricle common to the gullet and mouth.

The manner of the pulse and heate in a Quotidian.

It takes one with coldnesse of the extreame parts, a small and deepe pulse, which notwithstanding in the vigour of the fit, becomes more strong, great, full, and quicke. Just after the same manner, as the heate of this feaver at the first touch appeares mild, gentle, moist, and vaporious; but at the length it is felt more acride, no otherwise than fire kindled in greene wood, which is small, weake, and smokie at the first, but at the length when the moisture being overcome, doth no more hinder its action, it burnes and flames freely.

Criticall sweats.

The urine.

The Patients are freed from their fits with small sweats, which at the first fits breake forth very sparingly, but more plentifully when the *Crisis* is at hand; the urine at the first is pale and thicke, and sometimes thinne, that is, when there is obstruction. But when the matter is concocted, as in the state, it is red: if at the beginning of the fit they cast up any quantity of phlegme by vomite, and that fit be terminated in a plentifull sweate, it shewes the feaver will not long last; for it argues the strength of nature, the yeelding and renuicie of the matter flying up, and the excretion of the conjunct cause of the feaver.

Why Quotidians are oft times long. In to what diseases a quartaine usually changes.

A Quotidian feaver is commonly long, because the phlegmaticke humor being cold, and moist by nature, is heavic and unapt for motion; neither is it without feare of a greater disease, because oft times it changes into a burning, or quartaine feaver, especially

especially if it be bred of salt Phlegme; for saltnesse hath affinity with bitternesse, wherefore by adustion it easily degenerates into it, so that, it neede not seeme very strange, if salt Phlegme by adustion turne into choler, or Melancholy. Those who recover of a quotidian Feaver, have their digestive faculty very weake; wherefore they must not be nourished with store of meats, nor with such as are hard to digest. In a quotidian the whole body is filled with crude humors, whereby it comes to passe that this Feaver oft times lasts sixty dayes. But have a care, you be not deceived, and take a double tertian for a quotidian, because it takes the patient every day as a quotidian doth. Verily it will be very easie to distinguish these Feavers by the kinde of the humor, and the propriety of the Symptomes and accidents; beside, quotidianians commonly take one in the evening, or the midst of the night, as then when our bodies are refrigerated by the coldnesse of the aire caused by the absence of the Sunne. Wherefore then the cold humors are moved in us, which were bridled a litle before by the presence and heate of the Sunne. But on the contrary, double tertians take one about noone. The shortnesse and gentlenesse of the fit, the plentiful sweat breaking forth, the matter being concocted, causes us to thinke the quotidian short and salutary.

How to distinguish a quotidian from a double tertian.

The Cure is performed by two meanes; to wit Diet and Pharmacy. Let the Diet be slender and attenuating, let the patient breathe in a cleere aire moderately hot and dry; let his meats be bread well baked, cocke or chicken brothes in which have bin boiled the roots of Parsly, Sorrell and the like.

Diet.

Neither at some times will the use of hot meats, as those which are spiced and salted, be unprofitable, especially to such as have their stomacke & liver much cooled. Let him eat Chickins, Mutton, Partridge and small Birds, river fishes and such as live in stony waters fryed or broiled, reare Egges and such like. These fruits are also good for him, Raisons, stewed Prunes, Almonds and Dates. Let his drinke be small white wine mixed with boyled water. Moderate exercises will be good, as also frictions of the whole body: sleepe taken at a fitting time, and proportioned to waking, so that the time of sleepe fall not upon the time of the fit; for then it hurts very much; for calling the heat to the inner parts, it doubles the raging of the feaverish heat inwardly in the bowells.

When the use of spiced and salted meats are fit.

When sleepe is hurtfull.

For the passions of the minde, the patient must be merry, and comforted with a hope shortly to recover his health. It seemes not amisse to some, at the coming of the fit to put the feet and Legs into hot water, in which Chamomill, Dill, Melilote, Marjerome, Sage, and Rosemary have beene boyled.

The Medicines shall be such Syrupes as are called digestive and aperitive, as Syrupe of Wormewood, Mints, of the five opening rootes, *Oxymel* with a decoction of Chamomill, Calamint, Melilot, Dill and the like, or with common decoctions. The Purgatives shall be *Diaphanicon*, *Electuarium Diacarthami*, *Hiera picra*, Agaricke; Turbith; of which you shall make potions with the water of Mints, Balme, Hyssope, Sage, Fennell, Endive or the like, *Pillule aurea* are also good. These purgatives shall sometimes be given in forme of a bole with Sugar, as the Physition being present shall thinke most fit and agreeable to the nature of the Patient.

Medicines.

About the state of the disease, you must have a care of the stomake and principally of the mouth thereof, as being the chiefe seate of Phlegme; wherefore it will be good to anoynt it every other day with oyle of Chamomill mixed with a litle white wine, as also to unlade it by taking a vomit of the juice of Raddish, and much *Oxymel*, or with the decoction of the seeds and roots of *Asarum* and Chamomill; and Syrupe of vineger will be very good, especially at the beginning of the fit, when nature and the humors begin to move; for an inveterate quotidian, though you can cure it by no other remedy, nothing is thought to conduce so much as one dram of old Treacle taken with Sugar in forme of a Bole, or to drinke it dissolved in *Aqua vite*.

Care must be had of the stomacke.

Vomits.

The use of Treacle in an inveterate quotidian.

CHAP. XXIII.

Of a Scirrhus, or an hard Tumor proceeding of Melancholy.

What a true
and legitimate
Scirrhus is,



What an illegi-
timate Scirrhus
is.

The signes.

Prognosticks.

Having shewed the nature of Tumors caused by blood, choler and Phlegme, it remaines we speake of these, which are bred of a Melancholike humor; Of these there are said to be foure differences. The first is of a true and legitimate *Scirrhus*, that is, of an hard Tumor endued with little sense, and so commonly without paine, generated of a naturall Melancholike humor. The second is, of an illegitimate *Scirrhus*, that is, of an hard Tumor insensible, and without paine, of a Melancholike humor concrete by too much resolving and refrigerating. The third is of a cancerous *Scirrhus* bred by the corruption and adustion of the Melancholike humor. The fourth of a Phlegmonous, *Erysipelous* or *Oedematous Scirrhus*, caused by Melancholy mixed with some other humor. The cause of all these kinds of Tumors is a grosse, tough and tenacious humor concrete, in any part. But the generation of such an humor in the body happens either of an ill and irregular diet, or of the unnaturall affects of the liver or spleene, as obstruction; or by suppression of the *Hæmorrhoides* or Courses.

The signes are hardnesse, renitency, a blackish colour, and a dilatation of the veines of the affected part with blackishnesse, by reason of the abundance of the grosse humor. The illegitimate or bastard *Scirrhus* which is wholly without paine and sense, and also the cancerous, admit no cure, and the true legitimate scarce yeeld to any. Those which are brought to suppuration, easily turne into cancers and fistulaes; these tumors though in the beginning they appeare little, yet in proceesse of time they grow to a great bignes.

CHAP. XXV.

Of the Cure of a Scirrhus.

Diet.



Lib. 2. Ad
Glauconium.

Emollients.

The Cure of a *Scirrhus* chiefly consists of three heads. First, the Physitian shall prescribe a convenient diet, that is, sober and moderate in feeding, tending to humidity, and indifferent heate; for his manner of life, let it be quiet and free from all perturbation of anger, greife and sadnesse, as also abhorring the use of venery. The second is placed in the evacuation of the antecedent matter, as by Phlebotomy, if need require, and by purging, by procuring the *hæmorrhoids* in men and the courses in women; let purgations be prescribed of *Diacatholicon*, *Hyera*, *diasenna*, polipody, *Epythymum* according to the minde of the learned Physitian. The third consists in the convenient use of Topicke medicines, that is, emollient at the beginning, and then presently resolving, or rather such as are mixed both of resolving & emollient faculties, as *Galen* teaches; for by the use of only emollient things there is danger of putrefaction and a Cancer, and only of resolving there is feare of concretion the subtiler part being resolved, and the grosser subsiding.

The emollient shall be thus: *R. Rad. alb. lib. f. rad. liliorum ℥iij. coquantur in aqua com. pistentur, trayciantur per setaceum, addendo olei chamem. & lilior. an. ℥j. asipi humida ℥℔. emplastrum diachyl. alb. cum oleo liliorum dissoluti ℥iij, cera alba quantum sit satis, fiat cerotum.* Or *R. gummi ammoniaci, galb. bdellij, styracis liquida in aceto dissolutorum, an. ℥j. diachyl. mag. ℥℔, olei liliorum, & axungia anseris, an. ℥j. ceroti asip. descriptione Philagr. ℥ij. liquefiant omnia simul, cera quantum sit satis, ut inde fiat cerotum satis molle.* When you have sufficiently used emollient things, fume the Tumour with strong Vinegar and *Aqua vite* poured vpon

a peice of a Millstone, flint or bricke heated very hot; for so the mollified humor will be rarified, attenuated, and resolved; then some while after renew your emollients, and then againe apply your resolvers to waste that which remaines, which could not be performed together and at once; for thus *Galen* healed a Scirrhus in *Cercilius* his sonne. Goats dung is very good to discusse Scirrhus tumors; but the Emplaster of *Vigo* with a double quantity of Mercury is effectually above the rest, as that which mollifies, resolves and wasts all tumors of this kinde.

Lib. 2. ad Gluc.

The efficacy of the Empl of *Vigo* with Mercury.

CHAP. XXVI.

Of a Cancer already generated.



Cancer is an hard Tumor, rough and unequall, round, immoveable, of an ash or livide colour, horrid by reason of the veines on every side, swollen with blacke blood, and spread abroad to the similitude of the stretched out legs and claws of a Crabb. It is a tumor hard to be knowne at the first, as that which scarce equals the bignesse of a Chicke, or *Cicer*, after a little time it will come to the greatnesse of a Hasell Nut, unless peradventure provoked by somewhat too acride medicines it sodainly encrease; being growne bigger, according to the measure of the encrease it torments the patient with pricking paine, with acride heat, the grosse blood residing in the veines growing hot, and inferring a sence like the pricking of Needles, from which notwithstanding the Patient hath oft times some rest. But because this kinde of Tumor by the veines extended & spread about it like claws and feet, being of a livide and ash colour, associated with a roughnesse of the skin and tenacity of the humor, represents, as it were, the toothed claws of the Crab, therefore I thought it not amisse here to insert the Figure of the Crabb, that so the reason both of the name and thing might be more perspicuous.

What a Cancer is.

The nature of the paine.

The reason of the name.

The figure of the Crabb, called Cancer in Latine.



CHAP. XXVII.

Of the causes, kinds, and prognosticks of a Cancer.



Here we acknowledge two causes of a *Cancer*, the antecedent, and conjunct. The antecedent cause depends upon the default of irregular diet, generating and heaping up grosse and feculent blood; by the morbidicke affection

The cause of a Cancer.

The causes of
a not ulcerated
Cancer.

of the Liver disposed to the generation of that blood; by the infirmity or weakness of the spleene in attracting and purging the blood; by the suppression of the Courses or Hæmorrhoids, or any such accustomed evacuation. The conjunct cause is that grosse and melancholicke humor sticking and shut up in the affected part, as in a strait. That melancholicke blood which is more milde, and lesse maligne, onely encreased by a degree of more fervide heat, breeds a not ulcerated Cancer, but the more maligne and acride causes, an ulcerated. For so the humor which generated Carbuncles, when it hath acquired great heat, acrimony, and malignitie, corrodes, and ulcerates the part upon which it alights. A Cancer is made more fierce and raging by meates inflaming the blood, by perturbations of the minde; anger, heate, and medicines too acride, oiely, and emplastricke, unfitly applied, both for time and place.

The sorts and
differences of
Cancers.

Amongst the sorts or kindes of Cancers, there be two chiefly eminent, that is, the ulcerated or manifest Cancer, and the not ulcerated, or occult. But of Cancers some possesse the internall parts, as the Guts, Wombe, Fundement; others the externall, as the Breasts; also there is a recent, or late bred Cancer, and also an inveterate one. There is one small, another great; one raging and maligne, another more milde. Every Cancer is held almost incurable, or very difficult to be cured, for it is a disease altogether maligne, to wize, a particular Leprosie. Therefore saith Aetius, a Cancer is not easily staied untill it hath eaten even to the innermost of the part which it possesses. It invades women more frequently than men, and those parts which are laxe, rare, fungous, and glandulous, and therefore opportune to receive a defluxion of a grosse humor, such are the Breasts and all the emunctories of the noble parts. When it possesses the Breasts, it often causes inflammation to the armeholes, and sends the swelling ever to the glandules thereof; whereupon the Patients doe complaine that a pricking paine even peirces to their hearts. But this same paine also runs to the clavicles, and even to the inner side of the shoulderblades and shoulders. When it is encreased, and covers the noble parts, it admits no cure but by the hand; but in decaied bodies, whose strength faile, especially if the Cancers be inveterate, we must not attempt the cure, neither with instrument, nor with fire, neither by too acride medicines, as potentiall Cauteries; but we must onely seeke to keepe them from growing more violent, and from spreading further, by gentle medicines, and a palliative cure. For thus many troubled with a Cancer, have attained even to old age. Therefore Hippocrates admonishes us, that it is better not to cure occult, or hidden Cancers; for the Patients cured (saith he) doe quickly die, but such as are not cured live longer.

Aetius lib. 16.


The parts
most subject
to Cancers.

What Cancers
one must not
undertake
truly to cure.

CHAP. XXVIII.

Of the Cure of a Cancer beginning, and not yet ulcerated.

Lib. 2. ad Glau.

 Cancer beginning is oft hindred from encreasing, before it fasten its roots, but when it hath once encreased, it admits no cure but by iron, as that which contemnes, by reason of the malignity & contumacy, the force of all medicines. Galen affirms, he cured a Cancer not ulcerated.

Now that cure is performed by medicines, purging melancholy, by Phlebotomy, when the strength and age of the Patient may well endure it, by shunning all things, which may breed ill and sæculent blood. The distemper of the Liver must first be corrected, the Spleene strengthened, as also the part affected; in men the Hæmorrhoids, in women their Courses must be procured.

Diet,

Therefore thicke and muddy wines, vinegar, browne bread, cold hearbes, old cheese, old and salted flesh, Beefe, Venison, goate, hare, garlick, onions and mustard, and lastly all acride, acide and other salt things, which may by any meanes incrassate the blood, and inflame the humors, must be

be eschewed. A cooling & humecting diet must be prescribed; fasting eschewed, as also watchings, immoderate labours, sorrow, cares, and mournings; let him use ptisans, and in his brotestboile Mallowes, Spinach, Lettuce, Sorrell, Purslaine, Succory, Hops, Violets, Borradge, and the foure cold seeds. But let him feede on Mutton, Veale, Kid, Capon, Pullet, young Hares, Partridges, Fishes of stony rivers, reare Egges; and use white wine, but moderately for his drinke.

The part affected with the *Cancer* must be gently handled, and not overburdened by over hard, or heavy things, or by too solide, or fat emplaisters; on the contrary gentle and mitigating medicines must be used; applying also at certaine times such things as resist venome or poyson, as Treacle and Mithridate. Asses milke is exceedingly fit to assuage the acrimony of the cancorous humor. Therefore it must not only be taken inwardly, but also applied outwardly to the cancorous ulcer, making thereof a fomentation.

How to handle the cancorous part,

Antidotes.
Asses milke.

CHAP. XXIX.

Of the cure of an ulcerated *Cancer*.

AN Ulcerated *Cancer* hath many signes common with that which is not ulcerated, as the roundnesse of the tumor, the inequality, roughnesse, and paine; to the judgement of the eye, the tumour seemes soft, but it is hard to the touch; the Ulcer is filthy, with lips thicke, swolne, hard, knotty, turned out, and standing up, having a horrid aspect, and casting forth ichorous, filthy, and carionlike filth, sometimes blacke, sometimes mixed with rotten filth, and otherwhiles with much blood. This kinde of ulcer is maligne, rebellious, and untractable, as that which contemnes milde remedies, and becomes more fierce, by acride and strong; the paine, feaver, and all the symptomes being encreased, from whence the powers are dejected, the wasting and consumption of the body followes, and lastly death. Yet if it be small, and in a part which may suffer amputation, the body being first purged, and blood drawne, the strength of the Patient not dissuading, it will be convenient to use the hand, and to take hold of, and cut away whatsoever is corrupt, even to the quicke, that no feare of contagion may remaine, or be left behind. The amputation finished, the blood must not be presctly stopped, but permitted to flow out in some measure, yea verily pressed forth all about it, that so the veines swollne with blacke and melancholicke blood may be disburdened. When you have taken a sufficient quantity of blood, the place must be seared with an actuall cautery. For that will strengthen the part affected, draw forth the venenate quality, and also stay the defluxion. Then must you apply mitigating medicines, & procure the falling away of the Eschar. To conclude, that which remaines, must be performed according to the cure of other ulcers. Now we know and understand that all the *Cancer* is cut away, and all the malignity thereof extinct, when the ulcer casts forth laudable matter, when that good flesh begins to grow by little and little, like to the graines of a Pomegranate, the pricking paine, and all the symptomes being asswaged. Yet the cure of an ulcerated *Cancer*, which shall possesse the lips may be more happily and mildly performed, no causticke medicine being applied after section, so also that scarce any deformity will be left, when it is cicatrized. Which new and never formerly tried, or written of way, as farre as I know, I found and performed in a man of fifty yeares old. Doctor *John Altine*, a most learned Physician being called to Counsell, *James Guillemeau*, and Master *Eustachius*, the Kings Chirurgions, and *John Le Jeune* the Duke of Guise his most worthy Chirurgion being present.

The Signes.

How and where a *Cancer* may be cut away. What to be observed in cutting away a *Cancer*.

The benefit of applying a cautery after amputation of the *Cancer*.

Signes that a *Cancer* is well taken away.

The way is this; The *Cancer* must be thrust through the lips on both sides, above and below with a needle and threed, that so you may rule and governe the *Cancer* with your left hand; by the benefit of the threed (least any portion thereof should scape the instrument in cutting) and then with your Sizars in the right hand, you may cut it off all at once, yet it must be so done, that some substance of the inner part of the lippe, which is next to the teeth, may remaine, (if so be that the *Cancer* be

A new and observable way of taking away a *Cancer* from the lippe.

not growne quite through) which may serve as it were for a foundation to generate flesh to fill up the hollownesse againe. Then when it hath bled sufficiently, the sides & brinckes of the wound must be scarified on the right and left sides, within, and without, with somewhat a deepe scarification, that so (when we would draw together the sides and lips of the wound, by that manner of stitching, which is used in an hare-lippe) we may have the flesh more pliant and tractable to the needle and threed. The residue of the cure must be performed just after the same manner as we use in hare-lips; of which we shall treat hereafter.

CHAP. XXX.

Of the Topicke medicines to be applied to an ulcerated, and not ulcerated Cancer.

Repelling medicines,



At the beginning use repercussive medicines, such as are the juyces of Nightshade, Plantaine, Henbane, Lettuce, Sorrell, Housleeke, Water Lentill or Duckes-meate, Knotgrasse, Pomegranates, and the like. Also *oleum rosarum omphacinum*, the powders of Sumach, Berberies, Litharge, Ceruse, Burnt-lead, Tutia, Quicksilver, and the like. Of which you may compose Fomentations, Liniments, Ointments, Cataplasmes, Emplaisters. *Emplastrum Diacalcitheos* dissolved with juice of Nightshade, and oile of Roses is very fit for not ulcerated Cancers. *Pompholix*, or Tutia, washed in juice of Nightshade, or Plantaine, is very good for ulcerated Cancers. Besides this following medicine is very comendable.

R. *Lytharg. & cerus. an. ʒij, terantur in mortario plumb. cum oleo rosar. donec reaucantur ad consistentiam linimenti vel unguenti*; and there may be use of a resolving and repercussive ointment, as R. *plumbi usti loti, pomphol. thuris, an. ʒij, absinth. pontic. ʒss, olei rosarum ʒij, cera ʒvj, succi solani, quantum sufficit ad unguenti crassitudinem*. They very much commend Theodorickes Emplaister to assuage the paine of ulcerated Cancers.

Theodorickes Emplaister,

R. *Olei ros. cera alb. an ʒij, succi granat. & solani, an. ʒij, ceruse lota ʒj, plumbi usti, loti, & tutie prepar. an. ʒss, thuris, mastich. an. ʒij, fiat empl. molle*. This following ointment I have often used with good successe.

R. *Therciac. veter. ʒj, succi cancerorum ʒss, succi lactuca & olei rosar. an. ʒss, vitel. ovorum sub cinerib. coct. ij, camphor. ʒss, pistentur omnia in mortario plumb. & fiat unguentum*.

Leaches,

The application of whelps, chickens, &c.

Epist. 21. The estate of Erysimum.

The signes of the Cancer in the wombe.

R. *spum. argent. axungie porci recentis, cera alb. an lib. ʒss, olei boni ʒviij, vitel. ovorum assat. iiij, fiat unguent. servetur usui*. And when you will use it, mixe it with a little ointment of Roses. I have also mitigated great paine by applying Leaches to an ulcerated Cancer, in that part where the torment was most vehement, by disburdening the part of some portion of the malignant humor; which same thing I have done by application of young Whelpes, or Kittlings, or Pidgions, or Chickens cut long wayes, and presently applied to the ulcer, and now and then changed, as soone as their heat seemes dissolved; and others applied for the naturall heat in an anodyne or mitigating medicine. *John Baptista Theodosius* in his Epistles, writes, that a cataplasme of the herbe *Erysimum*, or Cadlocke, being beaten, is very good to be applied to a Cancer not ulcerated; but if the Cancer be ulcerated, he boiles this same herbe in *Hydromel*, and so by injections and lotions clenches the ulcer, and mitigates the paine. If the Cancer affect the wombe, the patient feels the pricking of the paine in the groines above the *peeten*, and in the Kidneyes, & is often troubled with a difficulty of making water; but when it is ulcerated it poures forth filth or matter exceeding stinking & carion-like, and that in great plenty; the filthy vapour of which carryed up to the heart and braine, causes often swoounding. Now to mitigate the paines of such like places, the following medicines are of good use.

R. *Mucag. semin. lini, fenugr. extract. in aqua rosar. & plantaginis quod satis est*; Of this being warme make a fomentation.

R. *Rad. Athea, ʒss. coquatur in hydromelite, pistetur, & traiciatur, addendo olei rosar. parum, fiat Cataplasma*. Also you shall make divers pessaries according to the different kinds of paine; also make injections of the juice of Plantaine, Knotgrasse, Lettuce, Purslaine, mixed together, and agitated or laboured in a leaden mortar with a little oile

oyle of Roses; for this kinde of medicine is commended by *Galen*, in every kinde of ulcerated *Cancer*. Also this following water is very profitable, and often approved by *me*. R. *Stercoris bubuli* lb. .iiij. *herba Roberti*, *plantag*, *semper vivi*, *hyoscyami*, *portulac*, *lactuc*, *endiv*, an. m. j. *cancros fluiatiles*, num. xij. let them be all beaten together and distilled in a leaden Alembicke, keepe the liquor for use and with it make often injection into the part; or if the site of the part will permit, let the cancerous ulcers be washed therewith, and pledgets of lint steeped therein be applyed and renewed ever and anon; for so the acrimony and force of the inflammation is re-
Lib. 9. Simpl.

tunded, and the paine asswaged. *Galen* beats into powder river Crabs burnt; the powder mixed with oyntment of Roses is most profitably applyed upon lint to cancerous ulcers.
Lib. 4. de comp. med. secundum gener.

It will be very convenient to put into the necke of the wombe the following instrument made of Golde, or Silver, whereby the cancerous filth may have free and safe passage forth, and the filthy and putredinous vapours may more easily breathe forth. Therefore let it be hollow quite through; some five or sixe fingers long, and about the bignes of ones Thumbe, at the upper end, perforated with many holes whereby the filth may have passage forth. Let the outer or lower end be some two fingers thicke in the circumference, make it with a neat springe, that may hold that end open more, or lesse according to the Physitions minde; let there be two strings, or laces put unto it, by which being tyed before and behinde to the rowler, with which the woman shall girt her loynes, the Device may be kept from falling, as you may see in the following figure.

A Vent made like a Pessary for the wombe affected with a Cancerous ulcer.



A. Shewes the upper end perforated with five or sixe holes.

B. The Lower end.

C. That part of the end which is opened by the springe, which is marked with the letter D.

E. The strings, or laces.

Neither is that remedy for not ulcerated cancers to be contemned, which consists of a plate of lead besmeared with quick-silver; for *Galen* himselfe testifies that lead is a good medicine for malignant and inveterate ulcers. But *Guido Cauliacensis* is a witnesse of ancient credit and learning, that such plates of lead rubbed over with quick-silver, to such malignant ulcers as contemne the force of other medicines, are as it were Antidotes, to waffe and overcome their malignity and euill nature. This kinde of remedy, when it was prescribed by that most excellent Physition *Hollerius*, who commanded me to apply it to the Lady of *Montigni* maide of Honor to the Queene mother, troubled with a *Cancer* in her left brest, which equalled the bignes of a Walnut, did not cruelly throughly heale it, yet notwithstanding kept it from further growth,

Wherefore

Lib. 9. simp.

Plates of Lead

A History.

Wherefore at the length growing weary of it, when shee had committed her selfe to a certaine Physitian boldly promising her quicke helpe, she tryed with losse of her life, how dangerous, and disadvantageous that cure of a *Cancer* was, which is undertaken according to the manner of healing other ulcers; for this Physition, when he had cast away this our medicine, and had begun the cure with mollifying, heating and attractive thing, the paine, inflammation and all the other Symptoms encreasing, the Tumor grew to that bignes; that being the humor drawne thither could not be contained in the part it selfe, it stretched the brest forth so much, that it broke it in the middle, just as a Pomegranate cleaves when it comes to its full maturity; whereupon an immoderate fluxe of blood following, for staying whereof hee was for to strew causticke powders thereon; but by this meanes the inflammation and paine becomming more raging, and swooundings comming upon her, shee poore Soule in steed of her promised health, yeelded up her ghost in the Physitions bosome.

CHAP. XXXI.

Of the Feaver which happeneth in Scirrhus Tumors.

Why a quartaine happens upon scirrhus tumors.



Such a Feaver is a Quartaine, or certainly comming neare unto the nature of a Quartaine, by reason of the nature of the Melancholike humor of which it is bred. For this shut up in a certaine seat in which it makes the tumor, by communication of putride vapours heats the heart above measure, and enflames the humors contained therein, whence arises a Feaver. Now therefore a quartaine is a Feaver comming every fourth day, and having two dayes intermission.

The primitive causes thereof are, these things which encrease Melancholike humors in the body, such as the long eating of pulse, of course and burnt bread, of salte flesh and fish, of grosse meates as Beefe, Goate, Venison, olde Hares, olde Cheese, Cabbage, thicke and muddy wines and other such things of the same kinde.

The antecedent causes are a heaped up plenty of Melancholike humors abounding over all the body. But the conjunct causes are Melancholike humors putrifying without the greater vessels, in the small veines and habite of the body.

The signes.

We may gather the signes of a Quartaine feaver from things which they call naturall, not naturall, and against nature; from things naturall, for a cold and dry temper, olde age, cold and fat men, having their veines small, and lying hidde, their spleene swolne and weak, are usually troubled with quartaine Feavers.

Why they are frequent in Autumne.

Of things not naturall; this Feaver, or Ague is frequent in Autumne, not onely because, for that it is cold and dry, it is fit to heape up Melancholike humors; but cheifly by reason that the humors by the heate of the preceding Summer are easily converted into adust Melancholy, whence far worser and more dangerous quartaines arise, than of the simple Melancholike humor; to conclude, through any cold or dry season in a region cold and dry, men that have the like Temper easily fall into quartaines; if to these a painefull kinde of life full of danger and sorrow doth accrew.

Of things contrary to nature; because the fitts take one with painefull shaking, inferring as it were the sence of breaking or shaking the bones; further it taketh one every fourth day with an itching over the whole body, and oft times with a thinne skurfe and pustles especially on the legges; the pulse at the beginning is litle, slow, and deepe, and the urine also is then white and waterish, inclining to somewhat a darke colour.

In the declination when the matter is concocted the urine becomes blacke, not occasioned by any malignant Symptome or preternaturall excesse of heat, (for so it should be deadly) but by excretion of the conjunct matter. The fit of the Quartaine continues 24 houres, but the intermission is 48 houres. It often takes its originall

originall from an obstruction, paine, and *scirrhus* of the Spleene, and the suppression of the courses and Hæmorrhoides.

Quartaines taken in the Summer are for the most part short, but in the Autumne long, especially such as continue till Winter. Those which come by succession of any disease of the Liver, Spleene, or any other precedent disease, are worse than such as are bred of themselves, and commonly end in a Dropsie. But those which happen without the fault of any bowells, and to such a patient, as will be governed by the Physition in his Diet, infer no greater harme, but free him from more grievous and long diseases, as Melancholy, the Falling sicknesse, Convulsions, Madnesse, because the Melancholy humor, the author of such diseases, is expelled every fourth day by the force of the fit of the Quartaine.

Prognosticks.

From what diseases a quartaine takes one.

A Quartane Feaver, if there be no error committed, commonly exceeds not a yeare, for otherwise some Quartanes have beene found to last to the twelfth yeare according to the opinion of *Avicen*: the Quartane beginning in Autumne is oft times ended in the following spring; the Quartane which is caused by adust blood or choler or Salt flegme is more easily and sooner cured, than that which proceeds from an adust Melancholy humor, because the Melancholy humor, terrestriall of its owne nature, and harder to be dissolved than any other humor, is againe made by adustion (the subtiler parts being dissolved and the grosser subsiding) more stubborn, grosse, malignant and acride. The cure is wholly abolved by two meanes, that is, by Diet and medicines. The Diet ought to be prescribed, contrary to the cause of the Feaver in the use of the fixe things not naturall, as much as lyes in our power. Wherefore the Patient shall eschew Swines flesh, flatulent, viscid and glutinous meats, tenny fowles, salt meats and Venison, and all things of hard digestion. The use of white wine indifferent hot and thin is convenient to attenuate and incide the grosse humor, and to move urine and sweat; yea verily at the beginning of the fit a draught of such wine will cause vomiting, which is a thing of so great moment, that by this one remedy many have been cured. Yet if we may take occasion and opportunity to provoke vomit, there is no time thought fitter for that purpose than presently after meate; for then it is the sooner provoked, the fibers of the Stomach being humsted & relaxed, and the stomach is sooner turned to vomiting, whereupon followes a more plentiful, happy and calke evacuation of the Flegmaticke and Cholericke humor, and lesse troublesome to nature: and of all the crudities with which the mouth of the ventricle abounds in a Quartaine, by reason of the more copious afflux of the Melancholike humor, which by his qualities cold and dry, disturbs all the actions and naturall faculties. Moreover exercises and frictions are good before meate; such passions of the minde as are contrary to the cause from which this Feaver takes his originall, are fit to be cherished by the patient; as Laughter, Teasting, Musique, and all such like things full of pleasure and mirth. At the beginning the patient must be gently handled and delt withall, and we must abstaine from all very strong medicines untill such time, as the disease hath beene of some continuance. For this humor, contumacious at the beginning when as yet nature hath attempted nothing, is againe made more stubborn, terrestriall and dry, by the almost fiery heat of acride medicines. If the body abound with blood, some part thereof must be taken away by opening the Median or Basilick veine of the left arme, with this caution, that if it appeare more grosse and blacke, we suffer it to flow more plentifully; if more thin, and tinged with a laudable red Colour, that we presently stay it. The matter of this Feaver must be ripened, concocted and diminished with the Syrrupes of *Epithymum*, of *Scolopendrium*, of Mayden hayre, Agrimony, with the waters of Hopps, Buglosse, Borage and the like. I sincerely protest, next unto God, I have cured very many quartaines by giving a potion of a little Treakle dissolved in about some two ounces of *Aqua vite*; also sometimes by two or three graines of muske dissolved in Muskadine, given at the beginning of a particular fit towards the generall declination of the disease, after generall purgations the humor and body being prepared, and the powers strong; And certainly an inveterate Quartaine can scarce ever be dissolved unlessse the body be much heated with meates and medicines. Therefore it is not altogether to be disproved which many say, that they have driven away

Diet.

How much vomiting prevails to cure a Quartaine

Medicine.

What quartaines must be cured with refrigerating things.

What bastard agues are and how they must be cured.

way a quartaine by taking a draught of wine every day as soone as they came forth of their bed, in which some leaves of Sage had bin infused all the night. Also it is good a little before the fit to anoint all the spine of the backe with oyles heating all the nervous parts, such as are the oyle of Rue, Wallnuts, of the Peppers, mixing therewith a little Aqua vitæ. but for this purpose the oyle of *Castoreum* which hath beene boyled in an apple of *Coloquintida*, the Kernells taken out, uppon hot coles to the consumption of the halfe part, mixing therewith some little quantity of the powders of Pepper, Pelitory of Spaine and *Euphorbium*, is excellent. Certainly such like Inunctions are good not onely to mitigate the vehemency of the terrible shaking, but also to provoke sweats; for because by their humid heat they discusse this humor being dull and rebellious to the expulsive facultie, for the Melancholy is as it were the drosse and mudde of the blood. Therefore if on the contrary the Quartaine feaver shall be caused by adust choler, we must hope for and expect a cure by refrigerating and humective medicines, such as are Sorrell, Lettuce, Purslane, brothes of the decoction of Cowcumbers, Gourds, Mellons and Pompions. For in this case if any use hot medicines, he shall make this humor most obstinate by the resolving of the subtiler parts. Thus *Trallianus* boasts that hee hath cured these kinds of Quartane Feaver by the onely use of refrigerating *Epithemaes* being often repeated a little before the beginning of the fit. And this is the summe of the Cure of true and legitimate intermitting Feavers. That is, of those which are caused by one simple humor, whereby the Cure of those which they call bastard intermitting Feavers, may be easily gathered and understood; as which are bred by a humor impure and not of one kinde, but mixt or composed by admixture of some other matter; for example, according to the mixture of diverse humors Flegmaticque and cholericke, the medicines must also be mixt, as if it were a confused kinde of Feaver of a *Quotidian* and *tertian*; it must be cured by a medicine composed of things evacuating flegme and choler.

CHAP. XXXII.

Of an Aneurisma, that is, the dilatation, or springing of an Artery, veine, or Sinnew.

What it is.



N *Aneurisma* is a soft tumor yeelding to the touch, made by the blood and spirit powred forth under the flesh and Muscles, by the dilatation or relaxation of an Artery. Yet the author of the definitions seemes to call any dilatation of any venous vessell by the name of an *Aneurisma*. *Galen* calls an *Aneurisma* an opening made of the *Anastomasis* of an Artery. Also an *Aneurisma* is made, when an Artery that is wounded closeth too slowly, the substance which is above it being in the meane time agglutinated, filled with flesh and cicatrized, which doth not seldome happen in opening of Arteries unskilfully performed and negligently cured; therefore *Aneurismaes* are absolutely made by the *Anastomasis*, springing, breaking, *Erosion*, and wounding of the Arteries. These happen in all parts of the body, but more frequently in the throat, especially in women after a painfull travaile. For when as they more strongly strive to hold their breath, for the more powerfull expulsion of the birth, it happens that the Artery is dilated and broken, whence followes an effusion of blood and spirits under the skin. The signes are, a swelling one while great, another small, with a pulsation and a colour not varying from the native constitution of the skinne. It is a soft tumor, and so yeelding to the impression of the fingers that if it peradventure be small, it wholly vanisheth, the Arterious blood and spirits flying backe into the body of the Artery, but presently as soone as you take your fingers away, they returne againe with like celerity. Some *Aneurismaes* doe not onely when they are pressed, but also of themselves make a sensible hissing, if you lay your eare neare to them, by reason of the motion of the vitall spirit rushing with great violence through the straitnes of the passage.

In what parts they chiefly happen.

Wherefore

Wherefore in *Aneurismaes* in which there is a great rupture of the Artery, such a noyse is not heard, because the spirit is carryed through a larger passage. Great *Aneurismaes* under the Armpits, in the Groines and in other parts wherein there are large vessells, admit no cure, because so great an eruption of blood and spirit often followes upon such an incision, that death prevents both art and Cure. Which I observed a few yeares agoe in a certaine preist of Saint *Andrewes* of the Arches, M. *John Maillet* dwelling with the chiefe President *Christopher de Thou*. Who having an *Aneurisma* at the setting on of the shoulder about the bignes of a Wall-nut, I charged him, hee should not let it be opened, for if it did, it would bring him into manifest danger of his life, and that it would be more safe for him, to breake the violence thereof with double clothes steeped in the juyce of Night-shade and Houselike, with new and whayey cheese mixt therewith: Or with *Unguentum de Bolo* or *Emplastrum contra rupturam* and such other refrigerating and astringent medicines, if hee would lay upon it a thin plate of Lead, and would use shorter breeches that his doublet might serve to hold it too, to which hee might fasten his breeches instead of a swathe, and in the meane time he should eschew all things which attenuate and inflame the blood, but especially he should keepe himselfe from all great straining of his voyce. Although he had used this Diet for a yeare, yet he could not so handle the matter but that the tumor increased, which he observing goes to a Barber, who supposing the tumor to be of the kinde of vulgar impostumes, applies to it in the Evening a Causticke causing an Eschar so to open it. In the Morning such an abundance of blood flowed forth from the tumor being opened, that he therewith astonished, implores all possible ayde, and bids that I should be called to stay this his great bleeding, and he repented that he had not followed my directions. Wherefore I am called, but when I was scarce over the threshold, he gave up his ghost with his blood. Wherefore I diligently admonish the young Chirurgion that hee do not rashly open *Aneurismas* unlessse they be small in an ignoble part, and not indued with large vessells, but rather let him performe the cure after this manner. Cut the skinne which lyes over it untill the Artery appeare, and then separate it with your knife from the particles about it, then thrust a blunt and crooked needle with a thred in it under it, binde it, then cut it off and so expect the falling off, of the thred of it selfe whiles nature covers the orifices of the cut Artery with new flesh, then the residue of the cure may be performed after the manner of simple wounds. The *Aneurismaes* which happen in the internall parts are incurable. Such as frequently happen to those who have often had the unctiō and sweat for the cure of the French disease, because the blood, being so attenuated and heated therewith that it cannot be containd in the receptacles of the Artery, it distends it to that largeness as to hold a mans fist; Which I have observed in the dead body of a certaine Taylor, who by an *Aneurisma* of the Arterious veine suddenly whilest hee was playing at Tennis fell downe dead, the vessell being broken: his body being opened I found a great quantity of blood powred forth into the Capacity of the Chest, but the body of the Artery was dilated to that largeness I formerly mentioned, and the inner Coate thereof was bony. For which cause within a while after I shewed it to the great admiration of the beholders in the Physitions Schole whilest I publiquely dissected a body there; the whilst he lived said he felt a beating and a great heate over all his body by the force of the pulsation of all the Arteryes, by occasion whereof hee often swooned. Doctor *Sylvius* the Kings professor of Physicke at that time forbad him the use of Wine, and wished him to vse boyled water for his drinke, and Crudds and new Cheeses for his meate, and to apply them in forme of Cataplasmes upon the grieved and swolne part. At night he used a ptisan of Barley meale and Poppy-seedes, and was purged now and then with a Clyster of refrigerating and emollient things, or with Cassia alone, by which medicines hee said hee found himselfe much better. The cause of such a bony constitution of the Arteries by *Aneurismaes* is, for that the hot and fervid blood first dilates the Coates of an Artery, then breakes them; which when it happens, it then borrowes from the neighbouring bodies a fit matter to restore the loosed continuity thereof.

This matter whilest by litle and litle it is dried and hardened, it degenerats into a Gristely

Prognosticks,

A History,

Aneurismaes
must not rashly
be opened.

How they
must be cured.

These of the
inward parts
incurable.

A History.

Lib. 4. Cap. ult.
de praesens
pulsu.

A Caution in
the knowing
of *Aneurismae*

Gristely or else a bony substance, just by the force of the same material and efficient causes, by which stones are generated in the reins and bladder. For the more terrestriall portion of the blood is dried and condensed by the power of the unnaturall heat containd in the part affected with an *Aneurismae*; whereby it comes to passe that the substance added to the dilated and broken Artery is turned into a body of a bony consistence. In which the singular providence of nature, the handmaide of God is shewed, as that which, as it were by making and opposing a new wall or bancke, would hinder and breake the violence of the raging blood swelling with the abundance of the vitall spirits; unlesse any had rather to refer the cause of that hardnesse to the continuall application of refrigerating and astringent medicines. Which have power to condensate and harden, as may not obscurely be gathered by the writings of *Galen*. But beware you be not deceived by the forementioned signes; For sometimes in large *Aneurismae*s you can perceive no pulsation, neither can you force the blood into the Artery by the pressure of your fingers, either because the quantity of such blood is greater than which can be containd in the ancient receptacles of the Artery, or because it is condensate and concrete into Clods, whereupon wanting the benefit of ventilation from the heart, it presently putrifies; Thence ensue great paine, a Gangren, and mortification of the part, and lastly the death of the Creature.

The End of the Seventh Booke.

THE



OF PARTICULAR TUMORS AGAINST NATURE.

THE EIGHT BOOKE

The Preface.



Ecause the Cure of diseases must be varied according to the variety of the temper, not onely of the body in generall, but also of each part thereof; the strength, figure, forme, site, and sence thereof being taken into consideration: I thinke it worth my paines, having already spoken of Tumors in Generall, if I shall treat of them in particular which affect each part of the body, beginning with those which assaile the head. Therefore the Tumor either affects the whole head, or

elle onely some particle thereof, as the Eyes, Eares, Nose, Cumms and the like. Let the *Hydrocephalos*, and *Physocephalos* be examples of those tumors which possesse the whole head.

CHAP. I.

Of an Hydrocephalos or watry tumor which commonly affects the heads of Infants.



He Greekes call this disease *Hydrocephalos*, as it were a Dropsie of the Head, by a waterish humor; being a disease almost peculiar to Infants newly borne. It hath for an externall cause the violent compression of the head by the hand of the Midwife or otherwise at the birth, or by a fall, contusion and the like. For hence comes a breaking of a veine or Artery, and an effusion of the blood under the skinne. Which by corruption becoming whayish, lastly, degenerateth into a certen waterish humor. It hath also an inward cause, which is the abundance of ferous and acride blood, which by its tenuity and heat sweats through the Pores of the vessells, sometimes betweene the Musculous skinne of the head and the *Pericranium*, sometimes betweene the *Pericranium* and the skull, and sometimes betweene the skull and the membrane called *Dura mater*, and otherwhiles in the ventricles of the braine.

The signes of it, contained in the space betweene the Musculous skinne and the *Pericranium*, are a manifest tumor without paine, soft, and much yeelding to the

What it is.

The causes.

Differences by reason of place

Signes.

pressure of the fingers. The Signes, when it remayneth betweene the *Pericranium* and the skull, are for the most part like the forenamed, unlesse it be that the Tumor is a little harder, and not so yeelding to the finger, by reason of the parts betweene it and the finger; And also there is somewhat more sence of paine. But when it is in the space betweene the skull and *Dura mater*, or in the ventricles of the Braine or the whole substance thereof, there is a dullnesse of the senses as of the sight and hearing; the tumor doth not yeeld to the touch, unlesse you use strong impression, for then it sincketh somewhat downe, especially in infants newly borne; who have their skulls almost as soft as waxe, and the junctures of their Sutures laxe, both by nature, as also by accident, by reason of the humor contained therein moistening and relaxing all the adjacent parts; the humor contained here lifts up the Skull somewhat more high, especially at the meetings of the Sutures, which you may thus know, because the Tumor being pressed, the humor flies backe into the secret passages of the braine.

To conclude, the paine is more vehement, the whole head more swollen, the forehead stands somewhat further out, the eye is fixt and immoveable, and also weepes by reason of the ferous humor sweating out of the braine.

A History.

Vesalius writes that hee saw a girle of two yeares old, whose head was thicker than any mans head by this kinde of Tumor, and the Skull not bonie, but membranous, as it useth to be in abortive birthes, and that there was nine pound of water ran out of it.

Abucrasius tells that he saw a child whose head grew every day bigger by reason of the watery moisture contained therein, till at length the tumor became so great, that his necke could not beare it neither standing nor sitting, so that hee died in a short time. I have observed and had in cure foure children troubled with this disease, one of which being dissected after it died, had a braine no bigger than a Tennis Ball. But of a Tumor and humor contained within under the *Cranium*, or Skull, I have seene none recover; but they are easily healed of an externall Tumor.

Therefore whether the humor lye under the *Pericranium*, or under the muscous skin of the head, it must first be assailed with resolving medicines, but if it cannot be thus overcome, you must make an incision, taking heede of the Temporall Muscle, and thence presse out all the humor, whether it resemble the washing of flesh newly killed, or blackish blood, or congealed or knotted blood, as when the tumor hath beene caused by contusion; then the wound must be filled with dry lint, and covered with double boulders, and lastly bound with a fitting ligature.

CHAP. II.

Of a Polypus, being an eating disease in the Nose.

The reason of the name.



Lib. 6. Cap. 8.

The differences thereof.

He *Polypus* is a Tumor of the Nose against nature, commonly arising from the *Os Ethmoides* or Spungye bone. It is so called, because it resembles the feet of a Sea *Polypus* in figure, and the flesh thereof in consistence. This Tumor stops the Nose, intercepting and hindering the liberty of speaking and blowing the Nose. *Celsus* saith the *Polypus* is a caruncle or Excrecence one while white, another while reddish, which adheres to the bone of the Nose, and sometimes fills the Nostrils hanging towards the lipps, sometimes it descends backe through that hole, by which the spirit descends from the Nose to the throtle; it growes so that it may be seene behinde the *Vula*, and often strangles a man by stopping his breath. There are five kinds thereof, the first is, a soft membrane, long and thin like the relaxed and depressed *Vula*, hanging from the middle gristle of the nose, being filled with a Phlegmaticke and viscid humor. This in expiration hangs out of the Nose, but is drawne in and hid by inspiration; it makes one snaffle in their speech and snort in their sleepe. The second, hath hard flesh, bred of Melancholy blood without adusion, which obstructing the nostrils intercepts the respiration made by that part. The third, is flesh hanging from the Gristle, round, and soft, being the off-spring

spring of Phlegmaticke blood. The fourth is an hard Tumor, like flesh, which when it is touched yeelds a sound like a stone; it is generated of Melancholike blood dried, being somewhat of the nature of a *Scirrhus* confirmed and without paine.

The fifth is as it were composed of many cancrus ulcers spread over the transverse surface of the gristle.

Of all these sorts of *Polypi*, some are not ulcerated; others ulcerated, which send forth a stinking and strong smelling filth. Such of them as are painefull, hard, resisting, and which have a livide, or leaden colour, must not be touched with the hand, because they savour of the Nature of a *Cancer*, as into which they oft degenerate; yet by reason of the paine which oppresses more violently, you may use the *Anodyne* medicines formerly described in a *Cancer*, such as this following.

R. Olei de vitell. ovorum ℥ij, *Lytharg. auri*, & *Tuthia* *prep. an.* ℥j. *succi plant.* *& solani* *an.* ℥℥j. *Lapid. hamatit.* & *camphora*, *an.* ℥℥. Let them be wrought a long time in a leaden mortar, and so make a medicine to be put into the nostrills. Those which are soft, loose and without paine, are sometimes curable, being plucked away with an instrument made for that purpose, or else wasted by actual cauteries put in through a pipe, so that they touch not the sound part; or by potential cauteries, as *Agyptiacum* composed of equal parts of all the simples with vitrioll which hath a facultie to waste such like flesh. *Aquafortis* and oyle of vitrioll have the same facultie, for these take away a *Polypus* by the rootes; for if any part thereof remaine it will breede againe. But Cauteries and acride medicines must be put into the nostrills with this Caution, that in the meane time cold repelling and astringent medicines be applied to the nose and parts about it to assuage the paine, and hinder the inflammation. Such as are *Vnguentum de bolo*, and *vnguentum nutritum*, whites of Egges beate with Rose leaves, and many other things of the like nature.

Which of them admit no manuell operation.

An Anodyne.

Why it must be taken cleare away.

CHAP. III.

Of the Parotides that is, Certaine swellings about the Eares.

THe *Parotis* is a Tumor against nature, affecting the Glandules and those parts seated behind and about the Eares, which are called the Emunctories of the braine; for these because they are loose and spongy, are fit to receive the excrements thereof. Of these some are critically, the matter of the disease somewhat digested being sent thither by the force of nature. Others Symptomaticall, the excrements of the braine increased in quantity or quality rushing thither of their owne accord. Such abscesses often have great inflammation joyned with them, because the byting humor which flowes thither is more vitiated in quality than in quantity. Besides also they often cause great paine, by reason of the distention of the parts indued with most exquisit sence, as also by reason of a Nerve of the fifth Conjugation spread over these parts; as also of the neighbouring membranes of the braine, by which meanes the patient is troubled with the Head-ach and all his face becomes swolne. Yet many times this kinde of Tumor useth to be rayfed by a tough, viscus, and grosse humor.

What it is.

The differences, Their signes and Symptomes.

This disease doth more grievously afflict young men than olde; it commonly brings a Feaver and watching. It is difficult to be cured, especially when it is caused by a grosse, tough, and viscid humor, sent thither by the *Crisis*.

Prognosticks.

The cure must be performed by diet, which must be contrary to the quality of the humor in the temper & consistence of the meates. If the inflammation & rednesse be great, which

The cure.

Lib. 3. de comp.
med. sec. Locos.
Hip. aph. 2 I
lib. I.

which indicate abundance of blood, Phlebotomie will be profitable, yea very necessary. But here we must not use the like judgement in application of locall medicines as we doe in others tumors, as *Galen* admonisheth us; that is, wee must not use repercussives at the beginning, especially if the abscesse be critically; for so, we should infringe or foreflow the indeavors of nature forcibly freeing it selfe from the morbi-
fique matter. But wee must much lesse repell or drive it backe if the matter which hath flowed thither be venenate, for so the reflow thereof to the noble parts would prove mortall. Wherefore the Chirurgion shall rather assist nature in attracting and drawing forth that humor. Yet if the defluxion shall be so violent, if the paine so fierce that thence there may be feare of watchings and a Feaver, which may deject the powers, *Galen* thinks it will be expedient with many resolving medicines to mix some repelling. Wherefore at the beginning let such a Cataplasme be applyed.

Rx. Far. bord. & sem. lin. ana. ʒij. coquantur cum malsa aut decocto cham. addendo but. recen. & olei cham. ana ʒj. fiat Cataplasma. And the following oyntment wil also be good.

Gentle resol-
ving medicines

Rx. But. recen. ʒij, olei cham. & lilior. an. ʒj. unguen. de Althea ʒʒ. cera parum: make an oyntment to be applyed with moist and greasie wooll to mitigate the paine, also somewhat more strong discussing and resolving medicins will be profitable, as :

Stronger re-
solvers.

Rx. Rad. althea & bryon. an. ʒij. fol. ruta, puleg. orig. an. m. j. flo. chamem. melil. an. p. j. coquantur in hydromelite, pistentur, traiciantur, addendo farin. fannagrac. orobi, an. ʒj. pul. Ireos, cham. melilot. an. ʒij. olei aneth. rutac. an. ʒj. fiat cataplasma. But if you determine to resolve it any more, you may use *Emplastrum Oxycroceum* & *Melilot-Plaster*. If the humor doth there concrete and grow hard, you must betake you to the medicines which were prescribed in the Chapter of the *Scirrhus*; but if it tend to suppuration, you shall apply the following medicine.

A Ripening
medicine.

Rx. Rad. liliorum & ceparum sub cineribus coct. an. ʒiij. Vitell. ovor. num. ij. axung. suilla & unguent. basilicon, an. ʒj. far. sem. lini ʒij. fiat Cataplasma. But if the matter doe so require, let the tumor be opened as we have formerly prescribed.

CHAP. III.

Of the Epulis, or overgrowing of the flesh of the Gums.

What it is.



The *Epulis* is a fleshy excrescence of the Gums betweene the teeth, which is by litle and litle oft times encreased to the bignes of an Egge, so that it both hinders the speach and eating; it casts forth salivous and stincking filth, and not seldome degenerates into a *Cancer*, which you may understand by the propriety of the colour, paine and other accidents; for then you must by no meanes touch it with your hand. But that which doth not torment the Patient with paine, may be pluckt away; and let this be the manner thereof.

The Sym-
tomes.

Let it be tyed with a double thred, which must be straiter twitched untill such time as it fall off; when it shall fall away, the place must be burnt with a cautery put through a trunke or pipe, or with *Aqua fortis*, or oyle of *Vitrioll*, but with great care that the sound parts adjoyning thereto be not hurt, for if so be that it be not burnt, it usually returnes.

The Chirur-
gicall cure.

I have often by this meanes taken away such large tumors of this kinde, that they hung out of the mouth in no small bignes, to the great disfiguring of the face, which when as no Chirurgion durst touch, because the flesh looked livide, I ventured upon because they were free from paine; and by taking them away and cauterizing the place, I perfectly healed them; not truly sodainly and at once; for although I burnt the place after dissection; yet neverthelesse they sprung up againe, because a certaine portion of the bone and sockets in which the Teeth stand fastened, were become rotten I have often observed such like flesh by continuance of time to have turned into a gristlely & bony substance. Wherefore the cure must be begun as speedily as may be; for being but litle, and having fastened no deepe roots, it is more easily taken away, being then only filled with a viscid humor, which in successe of time is hardened, and makes the taking away thereof more difficult.

Why the cure
must not be
deferred.

CHAP. V.

Of the Ranula.



Here is oft times a tumor under the tongue, which takes away the liberty of pronuntiatio, or speech; wherefore the Greeks call it *Batrachium*, the Latines *Ranula*, because such as have this disease of the tongue, seeme to expresse their minds by croaking rather than by speaking.

The Reason why it is so called.

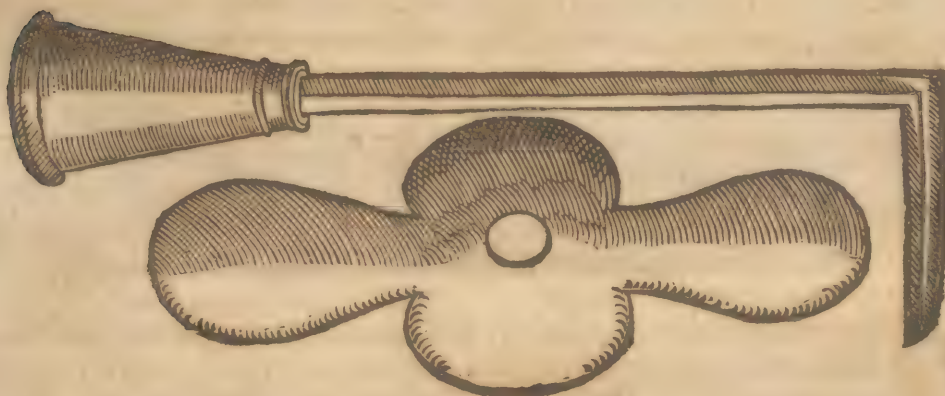
It is caused by the falling downe of a cold, moiste, grosse, tough viscid and Phlegmaticke matter, from the braine upon the tongue, which matter in colour and consistence resembles the white of an egge, yet sometimes it lookes of a Citrine or yellowish colour.

The Cause.

That you may safely performe the cure, you must open the Tumor rather with a cautery or hot Iron, than with a Knife, for otherwise it will returne againe. The manner of opening of it must be thus. You shall get a bended hollow and perforated iron plate with a hole in the midst, and making the patient to hold open his mouth, you shall so fit it, that the hole may be upon the part which must be opened. Then there you must open it with an hot Iron, for so you shall hurt no part of the mouth which is whole; but when you are ready to burne it, by thrusting your thumbs under the Patients Chin, you may somewhat elevate the Tumor, whereby you may open it with more certainty; when it is opened you must thrust out the matter contained therein, and then wash the patients mouth with some barley water, hony, and Sugar of Roses; for so the ulcer will be safely and quickly healed.

The Cure.

The deliniation of the Iron plate and crooked actuell Cautery.



CHAP. VI.

Of the swelling of the Glandules, or Almonds of the Throate.



Nature at the jawes neare the roots of the Tongue, hath placed two Glandules opposite to one another; in figure and magnitude like to Almonds, whence also they have their name, Their office is to receive the spittle falling downe from the braine, both least that the too violent falling downe of the humor should hinder the tongue in speaking, as also that the tongue might alwayes have moisture, as it were laid up in store, lest by continuall speaking it should grow dry and faile. For thus this spittle being consumed by feaverish heats, the patients are scarce able to speake, unlesse they first moisten their tongue by much washing of their mouth.

Why the Glandules are called Almonds.

Their use.

These Glandules because they are seated in an hot and moist place, are very subject to inflammations; for there flowes into these oft times together with the blood, a great quantity of crude, phlegmaticke and viscous humors, whence arises a tumor;

The Cause of their tumor.

which

which is not feldome occasioned by drinking much and that vaporous wine, by too much Gluttony, and staying abroad in the open aire.

Symptomes.

Swallowing is painfull and troublesome to the Patient, and commonly hee hath a Feaver. Oft times the neighbouring Muscles of the Throtle and necke are so swolne together with these Glandules, that (as it usually happens in the *Squinzye*) the passage of the breath and aire is stopped, and the Patient strangled.

Cure.

We resist this imminent danger by purging and blood-letting, by applying Cupping-Glasses to the Necke and shoulders, by frictions and ligatures of the extreme parts, and by washing and gargling the mouth and throate with astringent gargarismes. But if they come to suppuration, you must with your incision Knife make way for the evacuation of the Pus, or Matter; but if on the contrary, these things performed according to art, defluxion be encreased, and there is present danger of death by stopping and intercepting the breath, for the shunning so great and imminent danger, the top or upper part of the *Aspera arteria* or Weazon must be opened, in that place where it uses to stand most out; & it may be done so much the safer, because the jugular veines, and arteryes are furthest distant from this place, and for that this place hath commonly litle flesh upon it. And that the incision may be the fityer made, the patient must be wished to bend his head backe, that so the Artery may be the more easily come to by the instrument; then you shal make an incision overtwhart with a crooked knife betweene two rings (not hurting nor touching the Gristlely substance) that is to say, the membrane which tyes together the Gristlely rings being onely cut; you shal then judge that you have made the incision large enough, when you shal perceive the breath to breake out by the wound; the wound must be kept open so long, untill the danger of suffocation be past; and then it must be sowed up not touching the Gristle: But if the lipps of the wound shal be hard and callous, they must be lightly scarified, that so they may become bloody for their easier agglutination and union, as we shall shew more at large in the cure of Hare lips. I have had many in cure, who have recovered, that have had their Weazon together with the Gristlely rings thereof cut with a great wound, as we shall note when wee shal cometo treate of the cure of the wounds of that part.

Extreme diseases must have extreme remedies.

How you must open the Weazon.

CHAP. VII.

Of the inflammation and relaxation of the Vvula, or Columella.

What the Vvula is, and what the use therof. The Cause of the swelling thereof.



He *Vvula* is a litle body, spongy and somewhat sharpened to the forme of a pine apple, hanging even downe from the upper and inner part of the palat, so to breake the force of the Aire drawn in, in breathing and carryed to the Lungs, and to be as a quill to forme and tune the voyce. It often growes above measure by receiving moysture falling downe from the braine, becoming sharpe by litle and litle from a broader and more swolne Basis. Which thing causes many Symptomes; for by the continuall irritation of the distilling humor the Cough is caused, which also hinders the sleepe, and intercepts the liberty of speech; but also by hindring respiration the patients cannot sleepe unlesse with open mouth: they are exercised with a vaine endeavoring to swallow (having as it were a morsell sticking in their jawes) and are in danger of being strangled.

Symptomes.

The Cure.

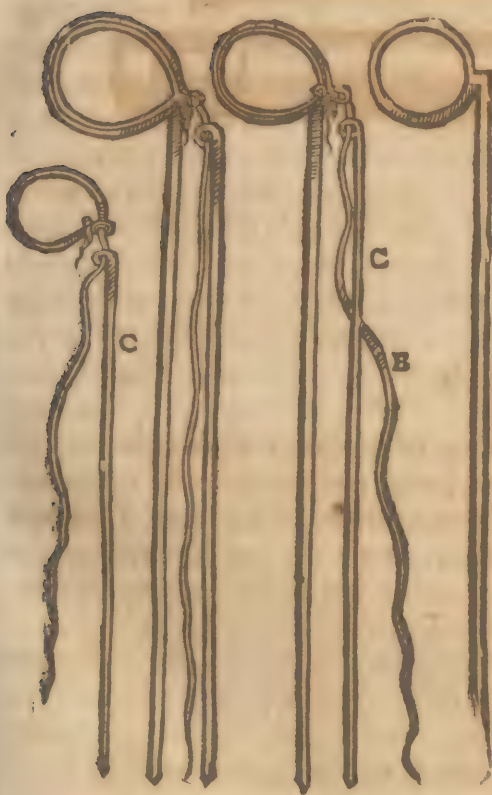
This disease must be resisted and assailed by purging, bleeding, Cupping, taking of chyfters, using astringent Gargles, and a convenient diet; but if it cannot thus be overcome, the cure must be tryed by a causticke of *Aqua fortis*, which I have divers times done with good successe. But if it cannot be so done, it will be better to put to your hand, than through idlenesse to suffer the patient to remaine in imminent and deadly danger of strangling; yet in this there must very great caution be used; for the Chirurgion shal not judge the *Vvula* fit to be touched with an instrument or caustick, which is swolne with much enflamed, or blacke blood after the manner of a *Cancer*; but hee shal boldly put to his hand if it be longish, grow small by litle and litle into a sharpe, loose & soft point; if it be neither exceeding red, neither swolne with too much blood

The Cure by Chirurgery.

but

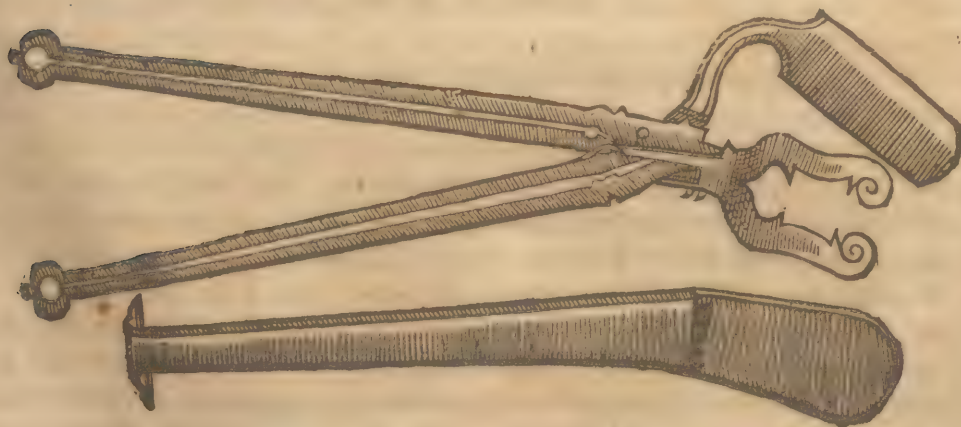
but whitish and without paine. Therefore that you may more easly and safely cut away, that which redounds and is superfluous, desire the patient to sit in a light place, and hold his mouth open; then take hold of the top of the *Vvula* with your fingers, and cut away as much thereof as shall be thought unprofitable. Otherwise you shall binde it with the instrument here under described; the invention of this instrument is to be ascribed to *Honoratus Tastellanus* that diligent and learned man, the Kings Physition in ordinary, and the chiefe Physition of the Queene mother; Which also may be used in binding of *Polypi* and warts in the necke of the Wombe.

The Deliniation of constrictory rings fit to twitch, or binde the Columella, with a twisted thred.



- A. Shewes the ring whose upper part is somewhat hollow.
 B. A double waxed thred, which is couched in the hollownesse of the ring, and hath a running, or loose knot upon it.
 C. An iron rod, into the eye whereof the fore-mentioned double thred is put, and it is to twitch the *Columella* when as much thereof is taken hold of, as is unprofitable, and so to take it away without any fluxe of blood. When you would straiten the thred, draw it againe through this iron rod, and so straine it as much as you shall thinke good, letting the end of the thred, hang out of the mouth. But every day it must be twitched harder than other, untill it fall away by meanes thereof, and so the part and patient be restored to health. I have deliniated three of these instruments, that you may use which you will, as occasion shall be offered.

A Figure of the Speculum oris, by which the mouth is held and kept open, whilest the Chirurgion is busied in the cutting away or binding the Vvula.



But if an eating ulcer shall associate this relaxation of the *Vvula*, together with a fluxe

fluxe of blood, then it must be burnt and seared with an hot iron, so thrust into a Trunke, or Pipe with an hole in it, that no sound part of the mouth may be offended therewith.

A hollow Trunke with a hole in the side, with the hot iron inserted, or put therein.



CHAP. VIII.

Of the Angina, or Squinzy.

What it is.

The differences.
The first kind.

The Sym-
ptomes.



He Squinancy, or Squinzy, is a swelling of the jawes, which hinders the entring of the ambient aire into the weazon, and the vapours and spirit from passage forth, and the meate also from being swallowed. There are three differences thereof. The first torments the patient with great paine, no swelling being outwardly apparent, by reason the morbidicke humor lyes hid behinde the almonds or Glandules at the *Vertebra* of the necke, so that it cannot be perceived, unlesse you hold downe the tongue with a spatula or the *Speculum oris*, for so you may see the rednesse and tumor ther e lying hid. The patient cannot draw his breath, nor swallow downe meate, nor drinke; his tongue, (like a Gray-hounds after a course,) hangs out of his mouth, and he holds his mouth open that so hee may the more easily draw his breath; to conclude, his voyce is as it were drownd in his jawes and nose; he cannot lye upon his backe, but lying is forced to sit, so to breathe more freely: and because the passage is stoppt, the drinke flies out at his nose; the eyes are fiery and swollen, and standing out of their orbe. Those which are thus affected are often suddainely suffocated, a foame rising about their mouthes.

The second
kinde.

The second difference is said to be that, in which the tumor appeares inwardly, but litle or scarce any thing at all outwardly, the tongue, Glandules, and jawes appearing somewhat swollen.

The third.

The third being least dangerous of them all, causes a great swelling outwardly, but litle inwardly.

The Cause.

The Causes are either internall, or externall. The externall are a stroake, splinter or the like things sticking in the Throat, or the excesse of extreme cold, or heat. The internall causes are a more plentifull defluxion of the humors either from the whole body or the braine, which participate of the nature either of blood, choler or flegme, but seldome of Melancholy. The signes by which the kinde and commixture may be knowne, have beene declared in the generall treatise of tumors. The Squinzy is more dangerous, by how much the humor is lesse apparent within and without. That is lesse dangerous which shewes it selfe outwardly, because such an one shuts not up the wayes of the meate, nor breath. Some dye of a Squinzy in twelue houres others in two, foure or seven daies. Those (saith *Hippocrates*) which scape the Squinzy, the disease passes to the lungs, and they dye within seven dayes;

dayes; but if they scape these dayes, they are suppurated; but also often times this kind of disease is terminated by disappearing, that is, by an obscure reflux of the humor into some noble part, as into the Lungs (whence the *Empyema* proceeds) and into other principall parts, whose violating brings inevitable death; sometimes by resolution, otherwise by suppuration.

The way of Resolution is the more to be desired; it happens when the matter is small, and that subtle, especially if the Physitian shall draw blood by opening a veine, and the patient use fitting Gargarismes. A Criticall Squincy divers times proves deadly by reason of the great falling downe of the humor upon the throte, by which the passage of the breath is sodainely shut up. Brothes must be used made with Capons, and Veale, seasoned with Lettuce, Purslaine, Sorrell, and the cold seeds.

If the Patient shall be somewhat weake, let him have potched Egges, and Barly ^{Diet.} Creames, the Barly being first boiled with Raisons in water and Sugar, and other meates of this kinde. Let him be forbidden wine, in stead whereof he may use *Hydromelita*, and *Hydrosachara* (that is, drinckes made of water and Hony, or water and Sugar) as also the Syrupes of dried Roses, of Violets, Sorrell and Limons, and others of this kinde. Let him avoide too much sleepe. But in the meane time the Physitian must be carefull of all, because this disease is of their kinde, which brooke no delays. Wherefore let the *Basilica* be presently opened, on that side the tumor is the greater; then within a short time after the same day, for evacuation of the conjunct matter, let the veine under the tongue be opened; let cupping-Glasses be applyed, sometimes with scarification, sometimes without, to the necke and shoulders, and let frictions and painefull Ligatures be used to the extreme parts. But let the humor impact in the part be drawne away by glisters and sharpe suppositories. Whilest the matter is in defluxion, let the mouth without delay be washed with astringent gargarismes to hinder the defluxion of the humor, least by its suddaine falling downe it kill the Patient, as it often happens, all the Physitions care and diligence notwithstanding. Therefore let the mouth be frequently washed with Oxy- ^{Repelling} crate, or such a gargarisme: *R. Pomorum silvest. nu. iiii. sumach, Rofar. rub. an. m. ss. berber. ʒij.* let them be all boyled with sufficient quantity of water to the consumption of the halfe, adding thereunto of the wine of soure Pomegranats ʒiiij. of *diamoron* ʒij, let it be a litle more boyled and make a gargle according to arte. And there may be other Gargarismes made of the waters of Plantaine, Night-shade, Verjuice, Iulep of Roses and the like. But if the matter of the defluxion shall be Phlegmaticke, Alume, Pomgranate pill, Cypresse nuts, and a litle Vinegar may be safely added. But on the contrary, repercussives must not be outwardly applyed, but rather Lenitives, whereby the external parts may be relaxed and rarified, and so the way be open either for the diffusing or resolving the portion of the humor. You shall know the humor to begin to be resolved, if the Feaver leave the patient, if he swallow, speake and breathe more freely, if he sleepe quietly, and the paine begin to be much awaged. Therefore then natures endeavor must be helped by applying resolving medicines, or else by using suppuratives inwardly and outwardly, if the matter seeme to turne into *Pus*. Therefore let gargarismes be made of the roots ^{Ripening} of March-Mallowes, Figgs, Iujubes, damaske Prunes, Dates, perfectly boyled in water. The like benefit may be had by Gargarismes of Cowes milke with Sugar, by oyle of sweete Almonds, or Violets warme, for such things helpe forward suppuration and aswage paine; let suppurating cataplasmes be applyed outwardly to the necke and throate, and the parts be wrapped with wooll moistened with oyle of Lillyes. When the Physitian shall perceive that the humor is perfectly turned into *Pus*, let the patients mouth be opened with the *Speculum oris*, and the abscesse opened with a crooked and long incision knife; then let the mouth be now and then washed with clensing gargles; as *R. Aqua horde ʒ lib. ss. mellis ros. ʒj. syr. rosar. sic. an ʒj. fiat gargarisma.* Also the use of *anamel*, that is wine, and Hony will be fit for this purpose. The ulcer being clensed by these means, let it be cicatrized with a litle roch-Alume added to the former gargarismes. ^{Dezergent}

The Figure of an incision knife opened out of the haffe, which serves for a sheath thereto.



CHAP. IX.

Of the Bronchocele, or Rupture of the throate.

The reason of the name.



That which the French call Goetra, that the Greeks call *Bronchocele*, the Latines *Gutturis Hernia*, that is, the Rupture of the throate. For it is a round tumor of the throate, the matter wherof comming from within outwards, is contained betweene the skin and weazon; it proceeds in weomen from the same cause as an *Aneurisma*.

The differences.

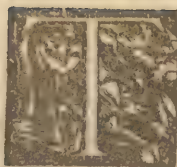
But this generall name of *Bronchocele* undergoes many differences; for sometimes it retaines the nature of *Melicerides*, other whiles of *Steatomas*, *Atheromas* or *Aneurismas*, in some there is found a fleshy substance having some small paine; some of these are small, others so great, that they seeme almost to cover all the throate; some have a *Cyste*, or bagge, others have no such thing; all how many so ever they be, and what end they shall have, may be knowne by their proper signes; these which shall be cureable, may be opened with an actuall or potentiall cautery, or with an incision knife. Hence if it be possible, let the matter be presently evacuated, but if it cannot be done at once, let it be performed at diverse times, and discussed by fit remedies, and lastly let the ulcer be consolidated and cicatrized.

The Cure.

CHAP. X.

Of the Pleurisie.

What it is.



The Pleurisie is an inflammation of the membrane, investing the ribbes, caused by subtil and cholericke blood, springing upwards with great violence from the hollow veine into the *Azygos*, and thence into the intercostall veines, & is at length powred forth into the emptie spaces of the intercostall muscles, and the mentioned membrane. Being contained there, if it tend to suppuration, it commonly infers a pricking paine, a Feaver and difficulty of breathing. This suppurated blood is purged and evacuated one while by the mouth; the Lungs sucking it, and so casting it into the Weazon, and so into the mouth, otherwhiles by urine, and sometimes by stoole.

Of a Pleurisie comming to suppuration.

Of the change thereof into an *Empyema*.

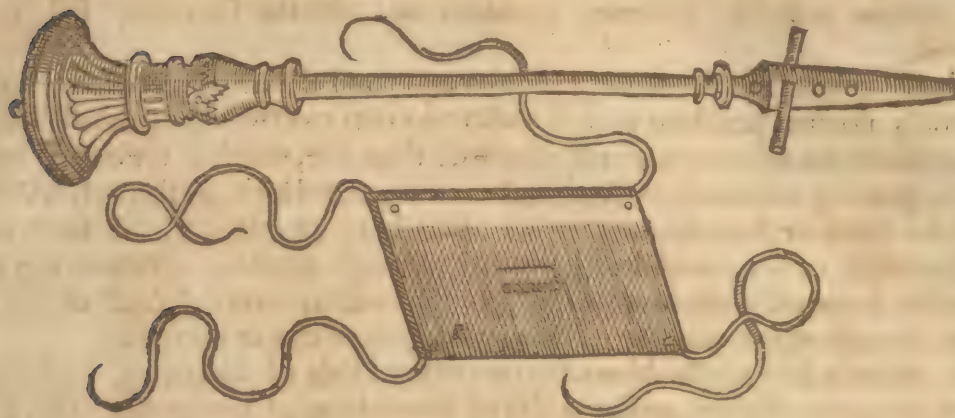
Of the apertion of the side in an *Empyema*.

But if nature being too weake, cannot expectorate the purulent blood poured forth into the capacity of the Chest the disease is turned into an *Empyema*, wherefore the Chirurgion must then be called, who beginning to reckon from below upwards, may make a vent betweene the third and fourth true and legitimate ribs; & that must be done either with an actuall or potentiall cautery, or with a sharpe knife drawne upwards towards the backe, but not downwards, lest the vessells should be violated which are disseminated under the rib. This apertion may be safely and easily performed by this actuall cautery; it is perforated with foure holes, through one whereof there is a pin put higher or lower according to the depth & manner of your incision:

the

then the point thereof is thrust through a plate of iron perforated also in the midst, into the part designed by the Physitian, lest the wavering hand might peradventure touch, and so hurt the other parts not to be medled withall. This same plate must be somewhat hollowed, that so it might be more easily fitted to the gibbous side, and bound by the corners on the contrary side with foure strings. Wherefore I have thought good here to expresse the figures thereof.

The Figure of an actual cantery with its plate fit to be
used in a pleurisie.



But if the patient shall have a large body, Chest and ribs, you may divide and perforate the ribs themselves with a Trepan; howsoever the apertion be made, the pus or matter must be evacuated by little and little at severall times; and the capacity of the Chest clenched from the purulent matter by a detergent injection of vj ounces of Barly water, and ʒij hony of Roses, and other the like things mentioned at large in our cure of wounds.

CHAP. XI.

Of the Dropsie.



HE Dropsie is a Tumor against nature by the aboumdance of a waterish humor, of flatulencies, or Phlegme, gathered one while in all the habite of the body, otherwhiles in some part, and that especially in the capacity of the belly betweene the *Peritonaum* and entrailes. From this distinction of places and matters there arise divers kinds of Dropsies.

First that Dropsie which fills that space of the belly, is either moist or dry. The moist is called the *Ascites*, by reason of the similitude it hath with a leather bottle, or *Borachio*, because the waterish humor is contained in that capacity, as it were in such a vessell.

The dry is called the *Tympanites*, or Timpany, by reason the belly swolne with winde, sounds like a (*Tympanum*) that is, a Drum. But when the whole habit of the body is distended with a Phlegmaticke humor, it is called *Anasarca* or *Leucophlegmatia*. In this last kinde of Dropsie the lower parts first swell, as which by reason of their site are more subject to receive defluxions, and more remote from the fountaine of the native heate; wherefore if you presse them downe, the print of your finger will remaine sometime after; the patients face will become pale and puffed up, whereby it may be distinguished from the two other kinds of Dropsie. For in them first the belly, then by a certaine consequence the thighes and feet doe swell. There are besides also particular Dropsies contained in the strait bounds of certaine places, such are the *Hydrocephalos* in the head; the *Bronchochele* in the throat; the *Pleurocele* in the Chest; the *Hydrocele* in the *Scrotum*, or Cod; and so of the rest. Yet they all arise from the same cause; that is, the weaknesse or defect of

What the
Dropsie is.

The differ-
ences thereof.

The Symp-
tomes.

The Causes.

the

How divers
diseases turne
into Dropsies.

the altering or concocting faculties, especially of the liver, which hath beene caused by a *Scyrrhus*, or any kinde of great distemper, chiefly cold, whether it happen primarily, or secondarily by reason of some hote distemper dissipating the native and inbred heate, such a Dropsie is uncureable; or else it comes by consent of some other higher or lower part; for if in the Lungs, Midriffe, or Reines there be any distemper, or disease bred, it is easily communicated to the gibbous part of the Liver by the branches of the hollow veine, which runnethither. But if the milchie proceed from the Spleene, Stomacke, Mesentery, Guts, especially the *jejunum* and *Ileum*, it creeps into the hollow side of the Liver by the meseraicke veines, and other branches of the *Vena porta* or Gate-veine. For thus such as are troubled with the *Asthma*, ptisicke, Spleene, Jaundise, and also the Phrensie, fall into a Dropsie.

The signes of
an *Ascites*.

The Symptoms.

Lastly, all such as have the menstruall or hæmorrhoid all blood suppressed or too immoderately flowing contrary to their custome, ei her overwhelmes, diminisheth or extinguisheth the native heate; no otherwise than fire, which is suffocated by too great a quantity of wood; or dieth and is extinguished for want thereof. We must looke for the same from the excrements of the belly or bladder, cast forth either too sparingly or too immoderately: Or by too large quantity of meates too cold, and rashly devoured without any order; To conclude by every default of externall causes, through which occasion, error may happen, in diet or exercise.

The *Ascites* is distinguished from the two other kinds of Dropsies, both by the magnitude of the efficient cause, as also by the violence of the Symptomes, as the dejected appetite, thirst, and swelling of the *Abdomen*. And also when the body is moved or turned upon either side, you may heare a sound as of the jogging of water in a vessell halfe full. Lastly the humor is diversely driven upwards or downewards, according to the turning of the body and compression of the *Abdomen*; It also causeth various Symptomes by pressure of the parts to which it floweth. For it causeth difficultie of breathing and the cough by pressing the Midriffe; by sweating through into the capacity of the Chest it causeth like Symptomes as the *Empyema*. Besides also the Patients often seeme, as it were, by the ebbing and flowing of the waterish humor, one while to be carryed to the skies, and another whiles to be drowned in the water, which I have learnt not by reading of any author, but by the report of the patients themselves. But if these waterish humors be fallen downe to the lower parts, they suppress the excrements of the Guts and bladder by pressing & straitning the passages. When the patient lies on his backe the tumor seemes lesse, because it is spread on both sides; On the contrary when hee stands or sits, it seemes greater, for that all the humor is forced or driven into the lower belly, whence hee feelles a heavines in the *Pecten* or share. The upper parts of the body fall away by defect of the blood fit for nourishment in quality and consistence; but the lower parts swell by the flowing downe of the Serous and watrish humor to them. The pulse is little, quicke, and hard with tention.

Prognostickes.

This disease is of the kinde of Chronicall or long diseases; wherefore it is scarce, or never cured, especially in those who have it from their mothers wombe, who have the Action of their Stomacke depraved, and those who are cachecticke, old, and lastly all such as have the naturall facultie languishing and faultie.

On the contrary young and strong men, especially if they have no Feaver, and finally all who can endure labour and those exercises which are fit for curing this disease, easily recover, principally if they use a Physition before the water which is gathered together doe putrefie and infect the bowells by its contagion.

CHAP. XII.

Of the cure of the Dropsie.

THe beginning of the cure must be with gentle and milde medicines; neither must we come to a *Paracentesis*, unlessse we have formerly used and tried these. Therefore it shall be the part of the Physition to prescribe a drying diet, and such medicines as carry away water, both by stoole and urine. *Hippocrates* ordaines this powder for Hydropicke persons. R, *Canthar. ablati* Hip. lib. 3. de acut. & lib. de intern. *capiti. & alis* ʒss. *Comburentur in furno, & fiat pulvis*; of which administer two graines in white wine, for nature helped by this, and the like remedies hath not seldome beene seene to have cured the dropsie. But that we may hasten the cure, it will be availeable to stirre up the native heate of the part by application of those medicines which have a discussing force: as bagges, baths, ointments, and emplaisters. Bagges. Let bagges be made of drie and harsh Bran, Oates, Salt, Sulphure, being made hot, or for want of them, of Sander, or Ashes often heated.

The more effectuall baths are salt, nitrous, and sulphurous waters, whether by Bathes. Nature or Art, that is, prepared by the dissolution of Salt niter, and Sulphur; to which, if Rue, Marjarom, the leaves of Fennell, and tops of Dill, of *Stachas*, and the like be added, the businesse will goe better forwards. Let the ointments be made Liniments of the oyles of Rue, Dill, Baies, and Squills, in which some *Euphorbium*, Pellitory of Spaine, or Pepper have beene boyled. Let plaisters be made of Franckinsence, Emplaisters, Myrrhe, Turpentine, *Costus*, Baiberies, English galengall, hony, the dung of Oxen, Pigeons, Goats, Horses, and the like, which also may be applied by themselves. If the disease continue, we must come to *Synapismes* and *Phenigmes*, that is, to rubrifying Vesicatories, and vesicatory medicines. When the blisters are raised, they must be annointed againe, that so the water may by little and little flow so long untill all the humor be exhausted, and the patient restored to health.

Galen writes, the Husbandmen in *Asia*, when they carried wheat out of the country into the city in Carrs, when they will steale away and not be taken, hidde some Gal. lib. de facul. natur. 1. stone jugs fild with water in the midst of the wheat; for that will draw the moisture through the jugs into it selfe, and increase both the quantitie and weight. When certaine pragmaticall Physitions had read this, they thought that wheat had force to draw out the water, so that if any sicke of the Dropsie should be buried in a heape of wheat, it would draw out all the water.

But if the Physition shall profit nothing by these meanes, he must come to the exquisitely chiefe remedy, that is, to *Paracentesis*. Of which because the opinions of the ancient Physitions have beene divers, we will produce and explaine them. Divers opinions of Paracentesis, or opening of the belly. Reasons against it.

Those therefore which disallow *Paracentesis*, conclude it dangerous for three reasons. The first is, because by powring out the contained water, together with it, you dissipate and resolve the spirits, and consequently the naturall, vitall, and animall faculties; another opinion is, because the Liver wanting the water by which formerly it was borne up; thence forward hanging downe by its weight, depresseth and draweth downewards the Midriffe and the whole Chest, whence a drie cough, and a difficulty of breathing proceede. The third is, because the substance of the *Peritonæum*, as that which is nervous, cannot be pricked or cut without danger, neither can that which is pricked or cut be easily agglutinated and united, by reason of the spermaticque and bloudlesse nature thereof. *Erasistratus* moved by these reasons condemned *Paracentesis* as deadly: also he perswaded that it was unprofitable for these following reasons, *viz.* because the water powred forth, doth not take away with it the cause of the Dropsie, and the distemper and hardnesse of the Liver, and of the other bowels, whereby it comes to passe that by breeding new waters they may easily againe fall into the Dropsie. And then the feaver, thirst, the hot and drie distemper of the bowels, all which were mitigated by the touch of the included water, are aggravated by the absence thereof, being powred forth: which thing seemeth to have moved *Avicen* and *Gordonius* that he said none; the other said very few lived after the *Paracentesis*: but the refutation of all such reasons is very easie. Erasistratus his Reasons against it.

Reasons for it.

For, for the first *Galen* inferres, that harmefull diffipation of spirits, and resolving the faculties happens, when the *Paracentesis* is not diligently, and artificially performed. As in which the water is presently powred forth; truly if that reason have any validity, *Phlebotomy* must seeme to be removed farre from the number of wholesome remedies, as whereby the bloud is powred forth, which hath farre more pure and subtile spirits, than those which are said to be diffused and mixed with the Dropsie-waters.

Lib. 3. Cap. 21.

But that danger which the second reason threatens shall easily be avoided; the patient being desired to lie upon his backe in his bed, for so the Liver will not hang downe. But for the third reason, the feare of pricking the *Peritoneum*, is childish: for those evils which follow upon wounds of the nervous parts, happen by reason of the exquisite sence of the part, which in the *Peritoneum* ill affected and altered by the contained water, is either none or very small. But reason and experience teach, many nervous parts, also the very membranes themselves being farre removed from a fleshie substance, being wounded, admit cure; certainly much more the *Peritoneum*, as that which adheres so straitly to the muscles of the *Abdomen*, that the dissector cannot separate it from the flesh, but with much labour. But the reason which seemes to argue the unprofitableness of the *Paracentesis* is refelled by the authority of *Celsus*. I, saith he, am not ignorant that *Erasisstratus* did not like *Paracentesis*; for he thought the Dropsie to be a disease of the Liver, and so that it must be cured, and that the water was in vaine let forth, which the Liver being vitiated, might grow againe. But first this is not the fault of this bowell alone, and then although the water had his originall from the Liver, yet unlesse the water which staieth there contrary to nature being evacuated, it hurteth both the Liver, and the rest of the inner parts, whilest it either encreaseth their hardnesse, or at the least keepeth it hard, and yet notwithstanding it is fit the body be cured. And although the once letting forth of the humor profit nothing, yet it make way for medicines, which while it was there contained, it hindered. But this serous, salt, and corrupt humor, is so farre from being able to mitigate a Feaver and thirst, that on the contrary, it encreaseth them. And also it augmenteth the cold distemper, whilest by its abundance it overwhelmes and extinguisheth the native heate. But the authority of *Calius Aurelianus* that most noble Phisition, though a Methodicke, may satisfie *Avicen* and *Gordonius*. They, saith he, which dare avouch that all such as have the water let out by opening their belly have died, doe lie; for we have seene many recover by this kind of remedy: but if any died, it happened either by the default of the flow or negligent administration of the *Paracentesis*. I will adde this one thing which may take away all error of controversies: we unwisely doubt of the remedy when the patient is brought to that necessity, that we can onely helpe him by that meanes. Now must we shew how the belly ought to be opened. If the Dropsie happen by fault of the Liver, the section must be made on the left side; but if of the Splene, in the right: for if the patient should lie upon the side which is opened, the paine of the wound would continually trouble him, and the water running into that part where the section is, would continually droppe, whence would follow a dissolution of the faculties. The Section must be made three fingers bredth below the Navell, to wit, at the side of the right muscle, but not upon that which they call the *Linea Alba*; neither upon the nervous parts of the rest of the muscles of the *Epigastrium*; that so we may prevent paine and difficulty of healing. Therefore wee must have a care that the patient lie upon his right side, if the incision be made in the left, or on the left, if on the right. Then the Chirurgion both with his owne hand, as also with the hand of his servant assisting him, must take up the skinne of the belly, with the fleshie pannicle lying under it, and separate them from the rest; then let him divide them so separated with a Section even to the flesh lying under them, which being done, let him force as much as hee can the devided skinne upwards towards the stomacke, that when the wound, which must presently be made in the flesh lying there under, shall be consolidated, the skinne by its falling therein, may serve for that purpose: then therefore let him divide the musculous flesh and *Peritoneum* with a small wound, not hurting the Kall or Guts.

Lib. de morb.
Cb. cap. de
Hydrope.

The places of
the apertion
must be divers,
according to
the parts
chiefely affec-
ted,

The manner
of making
apertion,

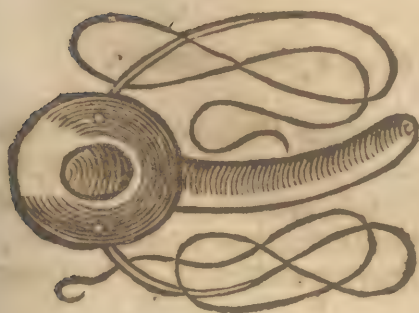
Then

Then put into the wound a trunke, or golden, or silver crooked pipe, of the thicknesse of a Goofes-quill, and of the length of some halfe a finger. Let that part of it which goes into the capacity of the belly have something a broad head, and that perforated with two small holes, by which a string being fastened, it may be bound so about the body, that it cannot be moved, unlesse at the Chirurgions pleasure. Let a sponge be put into the pipe, which may receive the dropping humor: and let it be taken out when you would evacuate the water: but let it not be powred out all together, but by little and little, for feare of dissipation of the spirits, and resolution of the faculties, which I once saw happen to one sicke of the Dropsie. He being impatient of the disease and cure thereof, thrust a Bodkin into his belly, and did much rejoyce at the powring forth of the water, as if he had bin freed from the humor and the disease, but died within a few houres, because the force of the water, running forth, could by no meanes be staied, for the incision was not artificially made. But it will not be sufficient to have made way for the humor by the meanes aforementioned, but also the externall orifice of the pipe must be stopped and strengthened by double cloathes, and a strong ligature, least any of the water flow forth against our wills. But we must note that the pipe is not to be drawne out of the wound, before as much water shall be issued forth as we desire, & the tumor requireth; for once drawne forth, it cannot easily be put in againe, and without force & paine be fitted to the lips of the wound, because the skin and fleshy pannicle cover it by their falling into the wound of the flesh or muscle. But whilst the water is in evacuation, we must have a diligent care of feeding the Patient, as also of his strength, for if that faile, and he seeme to be debilitated, the effusion of the water must be staied for some dayes; which at the length performed according to our desire, the wound must be so consolidated that the Chirurgion beware it degenerate not into a Fistula.

A History.

A Caution for taking out the Pipe,

The Figure of a Pipe in forme of a Quill, to evacuate the water in Dropsies.



Others performe this businesse after another manner; for making an incision, they thrust through the lipps of the wound with a needle and threed: but they take up much of the fleshie substance with the needle, least that which is taken up should be rent and torne by the forcible drawing of the lippes together. Then the threed it selfe is wrapped up and downe over both ends of the needle, so thrust through, as is usually done in a hare-lippe, that so the lippes of the wound may

Another manner of evacuating the water after the operation.

so closely cohere, that not a drop of water may get out against the Chirurgions will. Sometimes such as are cured and healed of the Dropsie, fall into the laundise, whom I usually cure after this manner. R, *sterc. anser.* ʒij, dissolve it in ʒiij, *vini alb. coctar.* make a Potion, and let it be given two houres before meate.

A medicine for the laundies.

CHAP. XIII.

Of the tumor and relaxation of the Navell.



He *Exomphalos* or swelling of the Navell, is caused by the *Peritoneum*, either relaxed or broken: for by this occasion oft-times the Guts, and oft-times the Kall, fall into the seat of the Navell, and sometimes superfluous flesh is there generated; otherwise this tumor is as an *Aneurisma* by too great a quantity of blood powred forth in that place: otherwise by a flatulent matter, and sometimes by a waterish humor. If the humor be occasioned by the Kall, the part it selfe will retaine his proper colour, that is, the colour of the skinn; the tumor will be soft and almost without paine, and which will reside without noise, either by the pressure of your fingers, or of it selfe when the Patient lieth on his backe; but the

The diuers causes thereof.

Signes hereof occasioned by the Kall.

By the guts: tumor caused by the guts, is more unequall, and when it is forced in by the pressure of your fingers, there is such a noise heard, as in the *Enterocoele*; but if the tumor proceede of superfluous flesh, it will be harder and more stubborne, not easily retiring into the body, although the Patient lie upon his backe, and you presse it with your fingers.

By flesh, The tumor is softer which proceeds of winde, but which will not retire into the body, and sounds under your naile like a taber. If the swelling be caused by a waterish humor, it hath all things common with the flatuous tumor, except that it is not so visible, and without noise. If it be from effusion of blood, it is of a livid colour, but if the effused blood shall be arteriall, then there are the signes of an *Aneurisma*.

By winde, Wherefore when the tumor is caused by the Guts, Kall, Winde, or a waterish humor, it is cured by Chirurgery: but not if it proceede from a fleshie excrescence or suffusion of blood. The tumor of the Navell proceeding from the Kall, and Guts, the Patient must lie upon his backe to be cured, and then the Kall, and Guts, must with your fingers be forced into their due place: then the skinne with which the tumor is circumscribed must be taken up with your fingers, and thrust through with a needle, drawing after it a double twined and strong threed; then it must be scarified about the sides, that so it may be the easier agglutinated. Then must it be thrust through with a needle, three or foure times, according to the manner and condition of the distention and tumor. And so twitch it strongly with a threed, that the skinne which is so bound may at length fall off together with the ligatures. But also you may cut off the skinne so distended even to the ligature, and then cicatrize it, as shall be fit. A flatulent tumor of the Navell shall be cured with the same remedies, as we shall hereafter mention in the cure of a windy rupture, but the watery may be powred forth by making a small incision. And the wound shall be kept open, so long, untill all the water be drained forth.

By a waterish humor.
By bruised blood.
Which may be cured by Chirurgery, which not.

The cure by Chirurgery.

CHAP. XIII.

Of the Tumors of the Groines and Codds, called *Herniæ*, that is, *Ruptures*.

There are onely 3. sorts of Ruptures,



He ancient Philistions have made many kindes of Ruptures, yet indeede there are onely three to be called by that name, that is, the *Intestinalis*, or that of the guts, the *Zirbalis*, or that of the kall, and that which is mixed of them both. The other kindes of Ruptures have come into this order, rather by similitude, than any truth of the thing: for in them the Gut, or Kall doe not forsake their places.

Bubonocoele.

Enterocoele and *Epiplocele.*

Hydrocele.
Physocoele.

Sarcocoele.

Cirrococle.

The Causes.

The signes.

The Greekes have given to all these severall names, both from the seat of the tumor, as also from their matter. For thus they have called an unperfect rupture which descends not beyond the Groines, nor falls downe into the Codds, *Bubonocoele*: but the compleate which penetrates into the Codde, if it be by falling downe of the Gut, *Enterocoele*: if from the Kall, *Epiplocele*; if from them both together, they name it *Enterocoele*: but if the tumor proceede from a waterish humor, they terme it *Hydrocele*; if from winde, *Physocoele*, if from both, *Hydrophysocoele*; if a fleshie excrescence shall grow about the testicle, or in the substance thereof, it is named *Sarcocoele*. If the veines interwoven, and divaricated diverse wayes shall be swollen in the Codde and Testicles, the tumor obtaines the name of a *Cirrococle*. But if the humors shall be shut up, or sent thither, the name is imposed upon the tumor, from the predominant humor, as we have noted in the beginning of our Tractate of tumors. The causes are many, as all too violent motions, a stroake, a fall from a high place, vomiting, a cough, leaping, riding upon a trotting horse, the sounding of trumpets, or sackbuts, the carrying, or lifting vp of a heavy burden, racking, also the too immoderate use of viscid and flatulent meates; for all such things may either relaxe or breake the *Peritonæum*, as that which is a thinne and extended membrane. The signes of a *Bubonocoele* are a round tumor in the Groine, which pressed, is easily forced in. The signes of an *Enterocoele*, are a hard tumor in the Codde, which forced, returneth backe and departeth

parteth with a certaine murmour and paine; but the tumor proceeding of the Kall, is laxe and feeles soft like Wooll, and which is more difficultly forced in, than that which proceeds from the Guts, but yet without murmuring and paine: for the substance of the Guts, seeing it is one, and continued to it selfe, they doe not onely mutually succcede each other, but by a certaine consequence doe, as in a dance draw each other, so to avoide distention, which in their membranous body cannot be without paine, by reason of their change of place from that which is naturall, into that against nature: none of all which can befall the Kall, seeing it is a stupide body, and almost without sense, heavy, dull, and immoveable. The signes that the *Peritoneum* is broken, are the sudden increase of the tumor, and a sharpe and cutting paine; for when the *Peritoneum* is onely relaxed, the tumor groweth by little and little, and so consequently with small paine; yet such paine returnes so often, as the tumor is renewed by the falling downe of the Gut, or Kall, which happens not the *Peritoneum* being broken: for the way being once open, and passable to the falling body, the tumor is renewed without any distention, and so without any paine to speake of. The rest of the signes shall be handled in their places. Sometimes it happens that the Guts, and Kall, do so firmly adhere to the proceffe of the *Peritoneum*, that they can not be driven back into their proper seate. This stubborne adhesion happens by the intervention of the viscid matter, or by meanes of some excoriation caused by the rude hand of a Chirurgion, in too violently forcing of the Gut, or Kall, into their place. But also, too long stay of the gut in the codde, and the neglect of wearing a Trusse, may give occasion to such adhesion. A perfect and inveterate rupture by the breaking of the proceffe of the *Peritoneum* in men of full growth, never, or very seldomes admits of cure. But you must note, that by great ruptures of the *Peritoneum*, the Guts may fall into the codde, to the bignesse of a mans head, without much paine and danger of life, because the excrements, as they may easily enter, by reason of the largenesse of the place and rupture, so also they may easily returne.

What rupture
is incurable.

CHAP. XV.

Of the cure of Ruptures.

Because children are very subject to Ruptures, but those truly not fleshy or varicous, but watry, windy, and especially of the Guts, by reason of continuall and painefull crying and coughing: Therefore in the first place we will treat of their cure. Wherefore the Chirurgion, called to restore the Gut which is fallen downe, shall place the child, either on a table, or in a bed, so that his head shall be low, but his buttocks, and thighes higher; then shall he force with his hands by little and little, and gently, the Gut into its proper place; and shall foment the Groine with the astringent fomentation, described in the falling downe of the wombe. Then let him apply this remedy, *R. Praescript. decoctionis quantum sufficit, farinae hordei & fabarum, an. ʒij. pulver. Aloes, Mastiches, Myrryll. & Sarcoco. an. ʒss, Bolz Armeni ʒij.* Let them be incorporated and made a cataplasme according to Art. For the same purpose he may apply *Emplastrum contra Rupturam*: but the chiefe of the cure consists in folded clothes, and Trusses, and ligatures artificially made, that the restored gut may be contained in its place, for which purpose he shall keepe the child seated in his cradle for 30. or 40. dayes, as we mentioned before; and keepe him from crying, shouting, and coughing. *Aetius* bids steepe paper 3. dayes in water, and apply it made into a ball to the groine, the gut being first put up; for that remedy by 3. dayes adhesion will keep it from falling down. But it will be, as I suppose more effectually, if the paper be steeped not in common, but in the astringent water, described in the falling downe of the wombe. Truly I have healed many by the helpe of such remedies, and have delivered them from the hands of Gelders, which are greedy of childrens testicles, by reason of the great gaine they receive from thence. They by a crafty cozenage, perswade the Parents, that the falling downe of the Gut into the Codde, is incurable: which thing notwithstanding, experience convinceth to be false, if so be the cure be performed according to the forementioned manner, when the *Peritoneum* is onely relaxed, and not broken: for the proceffe thereof by which

To what rup-
tures children
are subject.

An astringent
cataplasme.

Ser. 1. Cap. 24.

The craft and
covetousnesse
of Gelders.

Another way
to cure Rups-
tures.

The reason of
this cure.

Another me-
dicine.

A notable
History.

the Gut doth fall as in a steepe way, in progresse of time and age is strained and knit together, whilst also in the meane time the guts grow thicker.

A certaine Chirurgion who deserveth credit, hath told me that he hath cured many children as thus: He beates a loadstone into fine powder, and gives it in pappe, and then hee annointes with hony the Groine, by which the gut came out, and then strewed it over with fine filings of iron. He administred this kinde of remedy for ten or twelve dayes: The part, for other things, being bound up with a ligature and ruffe as was fitting. The efficacie of this remedy seemeth to consist in this; that the loadstone by a naturall desire of drawing the iron which is strewed upon the Groine, joynes to it the fleshy and fatty particies interposed betweene them, by a certaine violent impetuosity, which on every side pressing and bending the loosenesse of the *Peritonaeum*, yea verily adjoyning themselves to it, in processe of time by a firme adhesion intercept the passage and falling downe of the Gut or Kall; which may seeme no more abhorring from reason, than that we behold the loadstone it selfe through the thicknesse of a table, to draw iron after it any way. The same Chirurgion affirmed, that he frequently and happily used the following medicine. Hee burnt into ashes in an Oven red Snailles, shut up in an earthen pot, and gave the powder of them to little children in pappe, but to those which were bigger, in broath.

But we must despaire of nothing in this disease, for the cure may happily proceede in men of full growth, as of fortie yeare old, who have filled the three demensions of the body, as this following relation testifies.

There was a certaine Priest in the Parish of Saint *Andrewes*, called *John Moret*, whose office it was to sing an Epistle with a loud voice as often as the solemnitie of the day, and the thing required. Wherefore seeing he was troubled with the *Enterocoele*, he came to me, requiring helpe, saying, he was troubled with a grievous paine, especially then, when he stretched his voice in the Epistle.



The Figure of a man broken on one side, wearing a Trusse, whose bolster must have three Tuberosities, two on the upper, and one on the lower part; and there must be a hollownesse betweene them in the midst, that they may not too straitly presse the sharebone, and so cause paine. The manner of such a Trusse, I found out not long agoe, and it seemed better and safer than the rest for to hinder the falling aowne of the Gut and Kall.

A. Shewes the shoulderband which is tied before and behinde to the girdle of the Trusse.

B. The Trusse.

C. The Cavities left in the midst of the Tuberosities.

When I had seene the oignelle of the *Enterocoele*, I perswaded him to get another

to serve in his place; so having gotten leave of M. Curio Clarke, and Deacon of Divinity, he committed himself unto me: I handled him according unto Art, and commanded him he should never goe without a Trusse; and he followed my directions. When I met him some five or sixe yeares after, I asked him how he did, he answered very well, for he was wholly freed from the disease with which he was formerly troubled; which I could not perswade myself of, before that I had found that hee had told mee the truth, by the diligent observation of his genitals. But some sixe moneths after, he dying of a Pleurisie, I came to Curio's house where hee died, and desired leave to open his body, that I might observe whether nature had done any thing at all in the passage through which the gut fell down. I call God to witnesse, that I found a certaine fatty substance about the proceſſe of the *Peritoneum* about the bignesse of a little egge, and it did sticke so hard to that place, that I could scarce pull it away without the rending of the neighbouring parts. And this was the speedy cause of his cure. But it is most worthy of observation, and admiration, that Nature but a little helped by Art, healeth diseases which are thought incurable. The chiefe of the cure consists in this, that we firmerly stay the gut in its place, after the same manner as these two Figures shew,

We must never
despaire in dis-
eases if so be
nature be
assisted by
Art.



Another Figure of a man having
a Rupture on both sides, shewing
by what meanes, what kinde of
Trusse, and what shoulder-band
he must be bound on each groin.

A. Sheweth the shoulder-band di-
vided in the middest for the put-
ting through of the head.

B. The Trusse, with two bolsters,
betweene which is a hole for put-
ting through the yard. The forme
of both bolsters ought to be the
same with the former.

In the meane time we must not omit diet. We must forbidde the use of all things, which may either relaxe, dilate, or breake the proceſſe of the *Peritoneum*, of which I have already treated sufficiently. Sometimes, but especially in old men, the guts cannot be restored into their place by reason of the quantity of the excrements hardened in them: In this case they must not be too violently forced, but the Patient must be kept in his bed, and lying with his head low, and his knees higher up; let the following Cataplasmes be applied.

Re. rad. alib. & lil ana. ʒij. seminis lini. & sænug. an. ʒß, fol. malvæ, viol. & pariet. an. m. ʒ. Let them be boiled in faire water, afterwards beaten, and drawne through a
sieve

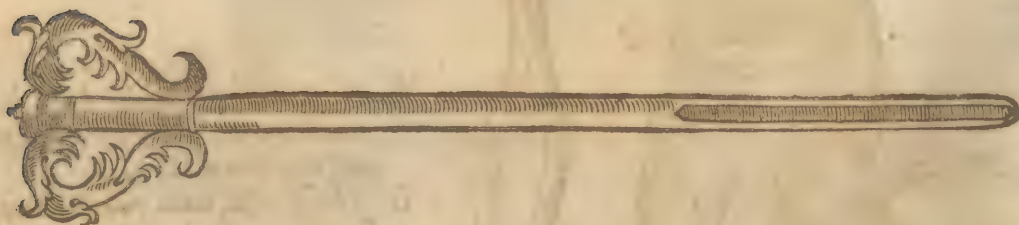
A Cataplasme
to soften the
excrements.

Chymicall
oyle.

scarfe, adding thereto of new Butter without salt, and oyle of Lillies, as much as shall suffice. Make a Cataplasme in the forme of a liquid pultis. Let it be applied hot to the Codde, and bottome of the belly; by the helpe of this remedy when it had beene applied all night, the guts have not seldome beene seene of themselves, without the hand of a Chirurgion, to have returned into their proper place. The windinesse being resolved, which hindered the going backe of the excrements into another gut, whereby they might be evacuated and expelled. But if the excrements will not goe backe thus, the flatulencies, yet resisting and undiscussed, an emollient and carminative Clyster is to be admitted with a little Chymicall oyle of Turpentine, Dill, Iuniper or Fennill. Clysters of Muscadine, oyle of Walnuts and *Aqua vita*, and a small quantitie of any the aforesaid oyles, are good for the same purpose.

It often happens that the guts cannot yet be restored, because the proesse of the *Peritoneum* is not wide enough. For when the excrements are fallen downe with the gut into the codde; they grow hard by little and little, and encrease by the accessse of flatulencies caused by resolution, which cause such a tumor as cannot be put up through that hole, by which a little before it fell downe: whereby it happens that by putrification of the matter there contained, come inflammations, and a new accessse of paine; and lastly, a vomitting and evacuation of the excrements by the mouth being hindered from the other passage of the fundament. They vulgarly call this affe& *Miserere mei*. That you may helpe this symptome, you must rather assay extreame remedies, than suffer the Patient to die by so filthy and loathsome a death. And we must cure it by Chirurgery after this manner following. We will binde the Patient lying on his backe, upon a Table or Bench; then presently make an incision in the upper pard of the codde, not touching the substance of the guts; then we must have a silver Cane or Pipe, of the thicknesse of a Goose quill, round, and gibbous in one part thereof, but somewhat hollowed in the other, as is shewed by this following Figure.

The Figure of the Pipe or Cane:



We must put it into the place of the incision, and put it under the production of the *Peritoneum* being cut together with the codde, all the length of the production; that so with a sharpe knife we may divide the proesse of the *Peritoneum*, according to that cavity separated from the guts there contained, by the benefit of the Cane in a right line not hurting the guts. When you have made an indifferent incision, the guts must gently be put up into the belly with your fingers, and then so much of the cut *Peritoneum* must be sowed up, as shall seeme sufficient, that by that passage made more straight, nothing may fall into the Codde, after it is cicatrized.

But if there be such abundance of excrements hardned, either by the stay or heate of inflammation, that that incision is not sufficient to force the excrements into their place, the incision must be made longer, your Cane being thrust up towards the belly: so that it may be sufficient for the free regresse of the guts into the belly. Then sow it up as is fit, and the way will be shut up against the falling downe of the guts or kall; the proesse of the *Peritoneum* being made more straight, by reason of the future; for the rest, the wound shall be cured according to Art. But before you undertake this worke, consider diligently whether the strength of the Patient be sufficient, neither attempt any thing before you have foretold, and declared the danger to the Patients friends.

CHAP. XVI.

Of the golden Ligature, or the Punctus Aureus, as they call it.

IF the Rupture will not be cured by all these meanes, by reason of the great solution of the continuity of the relaxt, or broken *Peritonaeum*, and the Patient by the consent of his friends there present, is ready to undergoe the danger in hope of recovery; the cure shall be attempted by that which they call the *Punctus Aureus*, or Golden tie.

The Chirurgicall cure by the golden Tie.

For which purpose a Chirurgion which hath a skilfull and sure hand, is to be imployed. He shall make an incision about the share bone, into which he shall thrust a Probe like to the Cane, a little before described; and thrust it long wayes under the proesse of the *Peritonaeum*, and by lifting it up, separate it from the the adjoining fibrous, and nervous bodies, to which it adheres; then presently draw aside the spermaticque vessels, with the *Cremaster*, or hanging muscle of the testicle; which being done, he shall draw aside the proesse it selfe, alone by it selfe: And he shall take as much thereof, as is too lax, with small and gentle mullets, perforated in the midst, and shall with a needle, having five or sixe threds, thrust it through as neere as hee can to the spermaticke vessels, and cremaster muscles. But the needle also must be drawne againe into the midst of the remnant of the proesse, taking up with it the lipps of the wound; then the threed must be tied on a strait knot, and so much thereof must be left after the section, as may be sufficient to hang out of the wound. This threed will of it selfe be dissolved by little and little by putrefaction: neither must it be drawne out before that nature shall regenerate and restore flesh into the place of the ligature, otherwise all our labour shall be spent in vaine.

And lastly, let the wound be clenched, filled with flesh, and cicatrized, whose callous hardnesse may withstand the falling of the gut, or kall.

There are some Chirurgians who would performe this golden Ligature after another manner. They cut the skinne above the share-bone where the falling downe commonly is, even to the proesse of the *Peritonaeum*, and they wrap once or twice about it, being uncovered, a small golden wyre, and onely straiten the passage as much as may suffice, to amend the loosenesse of this proesse, leaving the spermaticque vessels at liberty. Then they twist the ends of the wyre twice or thrice with small mullets, and cut off the remnant thereof; that which remains after the cutting, they turne in, least with the sharpnesse it should prick the flesh growing upon it. Then leaving the golden wyre there, they cure the wound like to other simple wounds, and they keepe the Patient some fiftene or twenty day in his bed, with his knees some thing higher, and his head some thing lower.

Another manner thereof.

Many are healed by this meanes; others have fallen againe into the disease by reason of the ill twisting of the wire.

There is also another manner of this golden tie, which I judge more quicke and safe, even for that there is no externall body left in that part after the cure. Wherefore they wrappe a leaden wyre in steade of the golden, which comes but once about the proesse of the *Peritonaeum*, then they twine it as much as neede requires, that is, not too loosely, least it should leave way for the falling downe of the body, neither too straitly, least a Gangrene should come by hindring the passage of the spirits and nourishment. The ends thereof are suffered to hang out; when in proesse of time, this contraction of the *Peritonaeum* seemes callous, then the wyre is untwisted and gently drawne out. And the rest of the cure performed according to Art. But let not the Chirurgion thrust himselfe upon his worke rashly, without the advice of the Physition, for it diverse times comes to passe, that the testicles are not as yet fallen downe into the Codde by the too great sluggishnesse of nature, in some of a pretty growth, but remains long in the groines, causing a tumor with paine, which thing may make a good Chirurgion believe that it is an *Enterocoele*. Therefore whilst he labours by repelling medicines and trusses to force backe this tumor, he encreaseth the paine, and hinders the falling downe of the testicles into the codde. I observed

The third manner thereof.

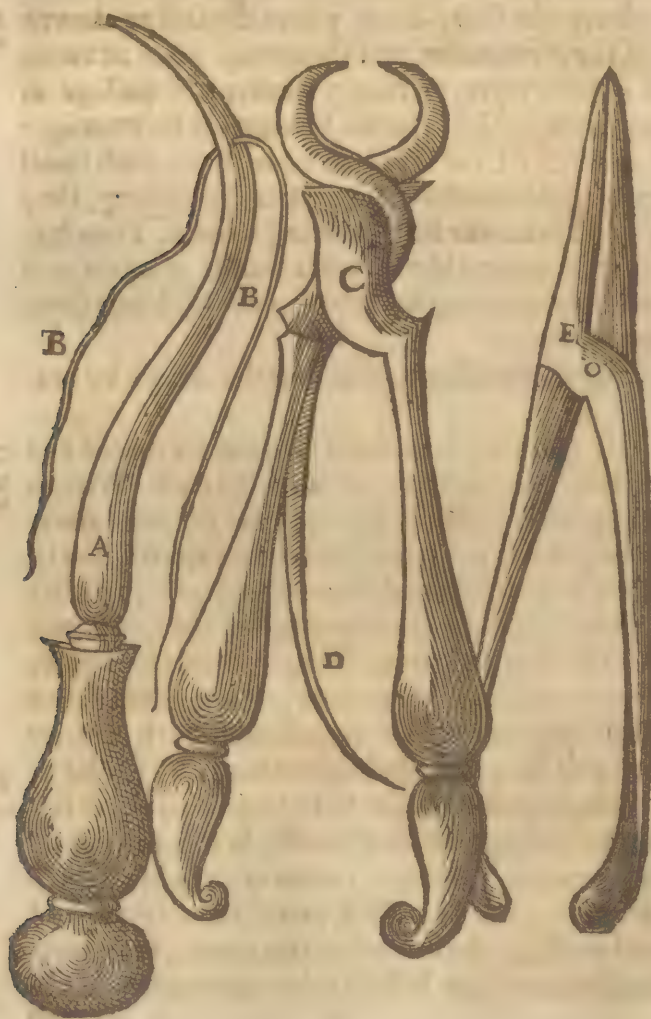
A thing to be noted,

A History.

served this not long agoe in a Boy, which an unskillfull Chirurgion had long, and grievously troubled, as if he had had a rupture: for when I had observed that there was but one stone in the Codde, and knew the Boy was never gelt, I bid them cast away the plasters, and trusses, and wisht his Parents that they should suffer him to run and leape, that so the idleing stone might be drawne into the Codde, which thing by little and little, and without paine, had the event, as I foretold. That the reason of this affect may be understood, we must know a man differs from a woman, onely in efficacie of heat; but it is the nature of strong heat to drive forth, as of cold to keepe in. Hence it is that the stones in men hang forth in the codde, but in women they lie hid in the lower belly. Therefore it happens that in some males more cold by nature, the testicles are shut up some certaine time, untill at length they are forc't downe into the codde by youthfull heat. But that we may returne to our former treatise of the codde, although that way of curing ruptures wants not paine and danger, yet it is safer than that which is performed by gelding, which by the cruelty thereof exposes the Patient to manifest danger of death. For the Gelders whilst they feare least when the cure is finished, the relaxation may remaine, pull with violence the proceesse of the *Peritoneum* from the parts to which it adheres, and together with it a nerve of the sixth conjugation which runnes to the stones; they offer the same violence to the spermaticke vessels; by which things ensue great paine, convulsion, efflux of bloud, inflammation, putrefaction, and lastly death, as I have observed in many whom I have dislected, having died a few dayes after their gelding. Although some escape these dangers, yet they are deprived of the faculty of generation for all their life after, for performance whereof nature hath bestowed the testicles, as parts principally necessary for the conservation of mankind. Through which occasion *Galen* hath not feared to preferre them before the heart; because the heart is the beginning of life, but the testicles of a better life; for it is farre more noble to live well, than simply and absolutely to live; therefore Eunuches degenerate into a womanish nature, for they

Lib. de arte medica.

Lib. de sem.



A. Shewes a crooked needle, having an eye not farre from the point, through which you may put the golden wyre.

B. B. The golden wyre put through the eye of the needle.

C. The mullets or Pincers, to cut away the wast or superfluous ends of the wyre.

D. The springe of the mullets.

E The mullets to twist the ends of the wyre together.

remain without beards, their voice is weak, their courage failes them, and they turne cowards; and seeing they are unfit for all humane actions, their life cannot but be miserable. Wherefore I will never subscribe to the cutting out of the stones, unless a *Sarcocoele* or Gangrene invade them. But that the way of performing the *Punctus aureus* may be better knowne, I have thought good here to set the instruments, by which this operation is performed, before your view.

Another more easie and safe way to restore the Gut and Kall.

T *Heodoricke* and *Guido* have invented another way of performing this operation. Lib. 3. Cap. 33. They put backe into their places the Gut and Kall being fallen downe, the Patient being so placed, that his thighs are high and his head is somewhat low; then they draw aside the lower portion of the production of the *Peritonaeum*, and also the spermaticke vessels, and cremaster muscle to the *Ischium*; then by applying a causticke fitted to the age and disease, they burne the other part of the proceffe, directly perpendicular to the ihare-bone, where the Gut did fall downe. Then they pull off the eschar thus made with a knife even to the quicke, then they apply another causticke in the same place, which may go even to the bone, then procure the falling of this Eschar made on the foresaid proceffe. And afterwards they heale the ulcer which remaines, which presently contracting somewhat a thicke *Callus*, so keeps up the Guts and Kall, that it bindes them from falling down into the Cod. This way of restoring the Gut and Kall, though it be safer and more facile; yet the Chirurgion must not attempt it, if the Guts or Kall sticke so fast, agglutinated to the proceffe of the *Peritoneum*, that they cannot be severed, nor put backe into their places (for from the guts so burnt and violated, greater mischiefe would ensue) if by the broken and too much dilated proceffe, the bodies thereby restrained, make an exceeding great tumor by their falling downe; if the testicle yet lying in the groine as in a *Bubonocoele*, a kinde of *Enterocoele*, being not yet descended into the *Scrotum* or Codde; if the Patients be not come to such age as they can keepe themselves from stirring, or hold their excrements whiles the operation is performed.

CHAP. XVII.

Of the cure of other kinds of Ruptures.

P *Piplocele* is the falling downe of the Kall into the Groine, or Codde, it hath the same causes as an *Enterocoele*. The signes have beene explained. It is not so dangerous, nor infers a consequence of so many evill symptoms, as the *Enterocoele* doth, yet the cure is the same with the other.

Hydrocele is a waterish tumor in the Codde, which is gathered by little and little betweene the membranes encompassing the testicles, especially the *Dartos* and *Erythroides*; it may be called a particular dropsie, for it proceeds from the same causes, but chiefly from the defect of native heate. The signes are a tumor encreasing slowly without much paine, heavy, and almost of a glassie clearenesse, which you may perceive by holding a candle on the other side, by pressing the Codde above, the water flowes downe, and by pressing it below, it rises upwards, unless peradventure in too great a quantity it fills up the whole capacity of the Codde, yet it can never be forced or put up into the belly as the Kall or Guts may, for oft times it is contained in a Cyste, or bagge; it is distinguished from a *Sarcocoele*, by the smoothnesse and equality thereof. The cure must first be tried with resolving, drying, and discussing medicines, repeated often before, and in the Chapter of the Dropsie; this which followes I have often tried and with good successe.

R. Vng. comitissa. & desiccata. rub. an. ʒij. malaxentur simul; and make a medicine for your case. The water by this kinde of remedy is digested and resolved, or rather dried up, especially if it be not in too great quantity. But if the swelling, by reason of the great quantity of water will not yeeld to those remedies, there is neede of Chirurgery

what a Hydrocele is.

The signes.

The cure.

A medicine to draw forth the contained matter.

rurgery; the Cod and membranes wherein the water is contained, must be thrust through with a Seton, that is, with a large threesquarepointed needle, thred with a skeane of silke; you must thrust your needle presently through the holes of the mullets made for that purpose, not touching the substance of the Testicles. The skean of thred must be left there, or removed twise or thrise a day, that the humor may drop downe, and be evacuated by little and little. But if the paine be more vehement by reason of the Seton, and inflammation come upon it, it must be taken away, and neglecting the proper cure of the disease, we must resist the symptoms.

Some Practitioners use not a Seton, but with a Razor, or incision knife, they open the lower part of the Cod, making an incision some halfe fingers breadth long, penetrating even to the contained water; alwayes leaving untouched the substance of the Testicles and vessels, and they keepe the wound open, untill all the water seemes evacuated; truly by this onely way the cure of a watery rupture whose matter is contained in a Cyste, is safe, and to be expected; as wee have said in our Treatise of Tumors in generall.

What a *Pneumatocoele* is,

The Cure.

The *Pneumatocoele*, is a flatulent tumor in the Codde, generated by the imbecility of heate residing in the part.

It is knowne by the roundnesse, lenity, renitencie and shining. It is cured by prescribing a convenient diet, by the application of medicines which resolve and dissusse flatulencies, as the seeds of Annis, Fennell, Fænugreeke, *Agnus Castus*, Rue, *Origanum*, other things set downe by *Avicen* in his Treatise of Ruptures. I have often used with good successe for this purpose, *Emplastrum Vigonis cum mercurio*; and *Emplastrum Diacalcitheos*, dissolved in some good wine, as Muscadine, with oyle of Bayes.

What a *Sarcocoele* is,

The signes.
Prognosticks,

A *Sarcocoele* is a tumor against nature, which is generated about the stones by a schyrrhus flesh. Grosse and viscide humors breed such kind of flesh, which the part could not overcome and assimilate to it selfe; whence this over-abundance of flesh proceeds, like as Warts doe. *Varices*, or swollen veines often associate this tumor; and it increases with paine. It is knowne by the hardnesse, asperitie, inequality, and roughnesse. It cannot be cured but by amputation or cutting it away; but you must diligently observe, that the flesh be not growne too high, and have already seized upon the Groine, for so nothing can be attempted without the danger of life.

The cure.

But if any may thinke, that he in such a case may somewhat ease the patient by the cutting away of some portion of this same soft flesh, he is deceived. For a *Fungus* will grow, if the least portion thereof be but left, being an evill sure worse than the former; but if the tumor be either small or indifferent, the Chirurgion taking the whole tumor, that is, the testicle, tumefied through the whole substance, with the proceffe encompassing it, and adhering thereto on every side, and make an incision in the Codde, even to the tumor; then separate all the tumid body, that is, the testicle from the Codde: then let him thrust a needle with a strong threed in it, through the middest of the proceffe above the region of the swolne testicle; and then presently let him thrust it the second time through the same part of the proceffe; then shall both the ends of the threed be tied on a knot, the other middle portion of the *Peritoneum* being comprehended in the same knot. This being done, he must cut away the whole proceffe with the testicle comprehended therein. But the ends of the threed, with which the upper part of the proceffe was bound, must be suffered to hang some length out of the wound, or incision of the Codde. Then a repercussive medicine shall be applied to the wound, and the neighbouring parts with a convenient ligature. And the cure must be performed as we have formely mentioned.

What a *Circosocoele* is,

The Cure,

The *Circosocoele* is a tumor of veines dilated, and woven with a various and mutuall implication about the testicle and codde, and swelling with a grosse and melancholy blood. The causes are the same as those of the *Varices*. But the signes are manifest.

To heale this tumor, you must make an incision in the codde, the bredth of two fingers to the *Varix*. Then you must put under the varicous veine, a needle having a double threed in it, as high as you can, that you may binde the rootes thereof: then

let

let the needle be againe put after the same manner about the lower part of the same veine, leaving the space of two fingers betweene the Ligatures. But before you binde the thread of this lowest Ligature, the *Varix* must bee opened in the midst, almost after the same manner as you open a veine in the arme to let blood: That so this grosse blood causing a tumor in the Cod, may be evacuated as is usually done in the Cure of the *varices*. The wound that remains shall be cured by the rules of Art after the manner of other wounds: Leaving the threads in it, which will presently fall away of themselves. To conclude then, it being growne callous especially in the upper part thereof, where the veine was bound, it must be Cicatrized, for so afterwards the blood cannot be strained, or run that way.

Hernia Humoralis is a tumor generated by the confused mixture of many humors in the Cod or betweene the tunicles which involue the testicles, often also in the proper substance of the testicles. It hath like causes, signes and cure as other tumors. While the cure is in hand, rest, trusses, and fit rowlers to sustaine and beare up the testicles are to be used.

Hernia Humoralis.

CHAP. XVIII.

Of the falling downe of the Fundament.



When the muscle called the *Sphincter* which ingirts the Fundament is relaxed, then it comes to passe that it cannot sustaine the right gut. This disease is very frequent to Children by reason of the too much humidity of the belly; which falling downe upon that muscle mollieth and relaxeth it or presseth it downe by an unaccustomed weight, so that the muscles called *Levatores Ani* or the lifters up of the Fundament, are not sufficient to beare up any longer. A great bloody flux gives occasion to this effect. A strong endeavour to expell hard excrements, the *Hæmorrhoides*, which suppressed doe over-loade the right gut, but flowing relaxe it: Cold as in those which goe without breeches in winter, or sit a long time upon a cold stone, a stroake or fall upon the Holy-bone: a palsie of nerves which goe from the Holy-bone to the Muscles the lifters up of the fundament: the weight of the stone being in the bladder.

The causes

That this disease may be healed, we must forbid the Patient too much drincking, too often eating of broth, and from feeding on cold fruits. For locall medicines the part must be fomented with an astringent decoction made of the rinds of Pomegranetts, galls, myrtles, knotgrasse, shepheards purse, Cypressenutts, Alum, and common salt boyled in smiths water or red wine. After the fomentation, the gut be annointed with oyle of Roses or myrtles, and then let it bee gently put by little and little into its place, charging the childe if he can understand your meaning, to hold his breath. When the gut shall be restored, the part must bee diligently wiped least the gut fall downe againe by reason of the slipperinesse of the unction. Then let the powder prescribed for the falling downe of the wombe be put into the fundament as farre as you can: Then you must straitly binde the loynes with a swathe, to the midst whereof behinde let another be fastned which may be tied at the *Pubes* comming along the *Perineum*, so to hold up to the fundament; the better to containe it in its place, a sponge dipt in the astringent decoction. The Patient if he be of sufficient age to have care of himselfe, shall be wished when hee goes to stoole that he sit upon two peeces of wood being set some inch a sunder, least by his straining hee thrust forth the gut together with the excrement; but if he can doe it standing, he shall never by straining thrust forth the gut.

The cure,

But if the gut cannot by the prescribed meanes bee restored to its place, *Hippocrates* bids that the Patient hanging by the heeles be shaken, for so the gut by that shaking will returne to his place: but the same *Hippocrates* wisheth to annoint the fundament, because that remedie having a drying faculty, hath also power

Hippocrates his cure.

to resolve the flatulent humors without any acrimony, by reason of which the gut was the lesse able to be contained in his place.

CHAP. XIX.

Of the Paronychia.

What the Pa-
ronychia is.



He *Paronychia* or *Panaris* is a tumor in the ends of the fingers, with great inflammation, comming of a malignant and venemous humor, which from the bones by the *Periostrum* is communicated to the tendons and nerves of that part which it affecteth, whereof cruell symptoms doe follow, as pulsiſique paine, a feaver, restleſſeneſſe, ſo that the affected through impatiencie of the paine are variously agitated like thoſe tormented with Carbuncles: for which cauſe *Guido* and *Iohannes de Vigo* judge this diſeaſe to be mortall; wherefore you muſt provide a ſkilfull Phyſitian for the cure of this diſeaſe, which may appoint convenient diet, purging and Blood letting. In the meane time the Surgeon, ſhall make way for the virulent and venenate matter, by making incision in the inner part of the finger, even to the bone alongſt the firſt joynt thereof; for *Vigo* ſaith there is not a preſenter remedy, if ſo be that it be quickly done and before the maturation of the matter; for it vindicates the finger from the corruption of the bone and nerves, and aſſwages paine, which I have often and happily tried immediatly at the beginning, before the perfect impreſſion of the virulencie.

Lib. 2. cap. 9.
ora. 8.

But the wound being made you muſt ſuffer it to bleede well, then preſently let him dip his finger in ſtrong and warme vinegar, in which ſome treacle being diſſolved may draw forth the virulencie. But to appeaſe the Paine, the ſame remedies muſt be applyed to the affected part as are uſed in Carbuncles, as the leaves of Sorrell, Henbane, Hemlocke, Mandrake roaſted under the Embers and beaten in a Morter with new *Vnguentum Populeon*, or oyle of Roſes or new butter without ſalt: for ſuch like medicines alſo helpe forward ſuppuration, whileſt by their coldneſſe, they reſſe the extraneous heat affecting the part; and ſo ſtrengthen the native heate being the author of ſuppuration: which reaſon moved the ancient Phyſicians to uſe ſuch medicines in a Carbuncle: but if by reaſon of the fearefulneſſe of the patient, or unſkilfulneſſe of the Surgion, no incision being made, a Gangren and Sphacel ſhall poſſeſſe the part, it remaines that you cut off with your cutting mullets as much of the part as ſhall be corrupt, and perſorme the reſt of the cure according to Art. Yet it doth not ſeldome happen that there may bee no neede to cut off ſuch a finger, becauſe it being corrupted together with the bone doth by little and little diſſolve into a purulent or rather ſanious and much ſtincking filth. But in this affect there is often cauſed an Eſchar by the aduſtion of putredinous heat, and ſuperfluous fleſh indued with moſt exquisite ſence groweth underneath it, which muſt in like manner be cut off with the Mulletts that the part may receive comfort, the paine being aſſwaged by the copious effuſion of blood.

CHAP. XX.

Of the ſwelling of the knees.

Gal. comm.
ad ſent. 1. ſer.
4. lib.
6 Epid. Gal.
Comm. ad ſent.
67. ſect. 2.
pro.



After long and dangerous diſeaſes there oftentimes ariſe Tumors in the knees, and alſo in plethoricke bodies and ſuch as have evill juyce after labours and exerciſe. This kinde of diſeaſe is frequent becauſe the humor eaſily falles into the part which hath beene heated by Labour. But if ſuch

such tumors follow long diseases, they are dangerous and difficult to cure, and therefore not to bee neglected; for bitter paine accompanieth them, because the humor falling thither distends the Membranes, which being many involve the part; besides that this humor participateth of a certaine virulent and maligne quality whether it be cold or hot, when it hath settled into those parts, being such as wee finde in the paines of the joynts, and in the bitings of venomous creatures.

For the cure, if the tumor bee caused by blood, let a slender and refrigerating diet be appointed, and phlebotomy for the revulsion of the antecedent cause; diverse locall medicines shall be used according to the variety of the foure times. But for to allwage the paine, *Anodyne* or mitigating medicines shall be appointed: of all which wee have sufficiently treated in the Chapter of the cure of a Phlegmon.

And because these parts are of exact sence, if there be necessity to open the tumor, yet must we not doe it rashly or unconsiderately, for feare of paine and evill accidents.

This kinde of tumor is oft times raised by winde contained there; in which case the Chirurgeon must bee very provident, that hee bee not deceived with the shew of flowing of the humor, which hee seemes to perceive by the pressure of his fingers, as if there were matter and humor contained therein, and so bee brought to open the tumor. For the winde breaking forth in stead of the humor, causeth evill symptomes by reason of the section rashly made in a part so sensible.

But if watrish humors shall tumifie the part, the body shall first be purged with medicines purging flegme: And then inciding, attenuating, rarifying, discussing and very drying locall medicines shall be used.

Of which wee have abundantly spoken in the Chapter of the *Oedema*. Yet this humor, divers times lyes deepe betweene the whirle bone and the joynt, which causeth it that it cannot be discussed and resolved by reason of the weaknesse of the part and defect of heate, so that the adventitious humor often moves and excludes the bones from their seate. As I have observed it to have happened to many.

In which cause Irrigations of red wine falling something high, whereby the force of the medicine may enter and more easily penetrate, are much commended.

CHAP. XXI.

Of the Dracunculus.

In cannot chuse, but explaine in this place those things which may bee spoken of that kinde of tumor against nature, which by the ancients is called *Dracunculus*. The matter and reason of these hath beene variously handled by diverse Authours, so that hitherto wee have nothing written of them to which wee may by right and with good reason ad-

here as a firme foundation of their essence.

For first for *Galens* opinion, *Lib. 6. de Loc. affect cap. 3.* The generation, saith he, of those hayres which are evacuated by the Urine is worthy no lesse admiration than the *Dracunculi*, which as they say, in a certaine place of *Arabia* breede in the legges of men being of a nervous nature and like wormes in colour and thicknesse.

Therefore seeing I have heard many who have sayd they have seene them, but I my selfe never saw them, I cannot conjecture any thing exactly neither of their originall nor essence.

It is not as yet sufficiently knowne what *Dracunculi* are.

Lib. 4. cap. ult.

Paulus Aegineta writes that the *Dracunculi* are bred in *India* and the higher parts of *Egypt*, like wormes in the musculous parts of mans body, that is, the armes, thighes and legges, and also creepe by the intercostall muscles in children with a manifest motion.

The cure out of *Egineta*.

But whether they be creatures indeede, or onely have the shape of creatures, they must bee cured with a hot fomentation, by which the *Dracunculus* raised to a just tumor, may put forth it selfe, and be pluckt away peece meale with the fingers: also suppurating Cataplasmes may be applyed, composed of water, honey, wheate and barley meale.

Cap 21. lib. 4.
sent. 3. tract. 3.

Avicen being various, having no certainty whereon to rest, inclineth one while to this, and another while to that opinion: for now he speaketh of the *Dracunculi* as of creatures, then presently of a matter and humor shut up in a certaine place; for the rest he rightly delivers the cure and essence of this disease, as we shall afterwards shew.

Lib. 1. cap. ult.

Aetius saith, the *Dracunculi* are like wormes, and that they are found sometimes great, sometimes small, and that their generation is not unlike to that of flat wormes, which are bred in the guttes, for they move under the skinne without any trouble, but in procelle of time, the place becomes suppurate about the end of the *Dracunculus*. The skinne openeth, and the head thereof is thrust forth.

The cure out of *Aetius*.

But if the *Dracunculus* bee pulled, it causeth great greefe; especially if it bee broken by too violent pulling. For that which is left causeth most vehement paine. Wherefore that the creature may not runne backe, the arme must bee bound with a strong threed, and this must bee done every day, that the *Dracunculus* going forward by little and little, may bee intercepted by this binding, but not broken off.

The place must bee bathed with *Aqua Mulsæ* and oyle in which wormewood or southernwood hath beene boyled, or some other of those medicines which are prescribed for the wormes of the belly.

But if the *Dracunculus* going forward of its owne accord, may be easily drawne forth, we must doe nothing else: but if it bee turned to suppuration wee must not leave off the Cataplasmes, the *Aqua Mulsæ* and anointing with oyle: It was usual with him after the taking away of the Cataplasmes, to apply *Emplastrum E Baccis Lauri*: but when it is come to suppuration the skinne must bee opened long wayes, and the *Dracunculus* so layd open must be taken away, but the skinne must be filled with lint, and the rest of the suppurative cure used, so that the creature being suppurated and drawne forth, the wound may bee incarnated and cicatrified.

Tract. 7.
cap. 34.
The cure out of *Rhasis*.

Rhasis writeth, that when the part is lifted up into a blister, and the veine hastneth its egress, it is good for the patient to drinke the first day halfe a dramme of *Aloies*, the next day a whole dramme, the third day two drammes; and in like manner the place affected must bee fomented with *Aloes*, for so that which lyes hid will breake forth: that which shall come forth must be rolled in a pipe of lead, which may equall the weight of a dramme so that it may hang downe, for the veine drawne by the weight will come more forth; and when that which shall come forth is growne much and long, it must be cut off, but not by the roote, but so that a portion thereof may remaine and hang forth, to which the leaden pipe may be fastned, for otherwise it would withdraw it selfe into its skinne and its lurking hole, and so cause a putrid and maligne ulcer.

Therefore wee must gently meete with this disease, and the veine must be drawne by little and little out of the body untill it be all come forth that no worse thing happen: but if by chance it shall happen that as much of the veine as shall bee come forth shall be cut off by the rootes, then the ulcer must be opened long wayes with an incision knife, and that so that whatsoever remains thereof may bee wholly taken away. Then for some dayes the part must be annointed with butter untill whatsoever of such a substance adheres, being consumed with putrifaction shall flow away. Then the ulcer must be cured with sarcoticke things.

There-

Therefore *Rhasis* thus in the same text expresseth the same thing by diverse names, and armed with Iron and Lead, hee comes to the cure thereof, as if hee meant to encounter with some fierce beast.

His opinion
of them.

Soranus the Physician, who lived in the times of *Galen*, was of a quite contrary opinion, as *Paulus Aegineta* in the place being before cited, relates of him; as who denies the *Dracunculus* to be a living creature, but onely a condensation of a certaine small nerve, which seemes both to the Physicians and Patients to have some motion under the skinne.

Soranus his
opinion.

Wherefore *Soranus* seemes to have come neerer the truth than the rest, but yet not so, as throughly to understand, and know the essence of this disease, as we shall demonstrate hereafter.

Manardus writes, that the *Dracunculi* are generated of evill and unlaudable blood, grosse, hot, and melanckolicke, or of adust phlegme very much dried.

Epist. 2. lib. 7.

Gorranus a most learned Physician of our time, *Lib. de Definitionib. medic.* denies any of our Physicians to be able to say any thing of the *Dracunculi*, because it is a disease so unfrequent in these our regions, that it is scarce ever met withall in practice.

The Author of the Introduction, and Medicinall definitions, defines the *Dracunculus* to be a disease very like the *Varices*; then causing great paine, when increasing by little, and little, it begins to bee moved: Therefore to bee cured after the same manner, and by the same method of Section and incision, as the *varices* are. Which thing chiefly seemes to have moved *Guido* to referre this kinde of disease to the *Varices* in his Tractate of Impostumes, because it hath the same cause, and is healed with the same remedy as the *varices*.

But seeing that diverse names have beene imposed upon this disease by severall writers, yet they all have expressed it by the name of a veine: for it is called by *Avicen* and *Guido*, *Vena Medea*, because it is a disease frequent in the Citty *Medina*: by *Albucrafis*, *vena civilis*. *Aliabbas* hath called it *vena famosa*; others have called it *Vena Cruris* or the legge veine. Truly the contrariety of so many opinions repugnant not onely amongst themselves, but also with themselves, easily argueth how little certainty they had of the essence of this disease, who have written of it unto us: To which also this may be added, that none of the latter Physicians have written any things thereof. For although *Jacobus Dalechamphius* a man most conversant in every part of Physicke, hath written much of this matter in his booke of the French Surgery which he set forth some yeares agoe: Yet he hath left us no amplier testimony of his industry, than that hee was very diligent in collecting the writings of the Ancients concerning this thing, interposing no judgement of his owne, the better to assure us of a thing so controverted.

But my modesty cannot so containe me, but that I shall chuse rather to undergoe the censure of being thought too daring, than (as much as in me lyeth,) to suffer this question of the *Dracunculi* to remaine longer ambiguous and undecided. Therefore for the present, I will thus order it, that refuting the opinions of the Ancients I may strengthen by certaine reasons, my opinion of the essence and cure of this disease.

For first, that *Dracunculi* are no living things, nor like unto wormes, nor of like generation as the flat wormes of the belly, which was the opinion of *Aetius*, is easie to disprove both by his writings, as also by reason it selfe. For he writes that the broad worme which hee calls *Tenia*, is as it were a certaine *Metamorphosis* or transmutation of the inner tunicle of the small guttes, into a quicke living and moveable body.

Aetius opinion
confuted.
*Tract. 3. serm.
m. 1. cap. 40.*

But no man ever sayd, neither will he confesse that the *Dracunculi* have the materiall causes of their beginning from the tunicle of the veine, in which they are closed, or from the fibers of a nervous body, to which often they are adjoynd; but much lesse from the skinne under which they lie, may they draw their materiall causes of their originall.

Moreover, neither can there bee any generation of wormes, nor of any other living creatures whatsoever, who have their originall from putrifaction,

unlesse

4. *Meteorolog.*

unlesse by the Corruption of some matter, of whose better and more benigne part, nature by the force of the vitall heat, produceth some animate body, as *Aristotle* teacheth. Wherefore to produce this effect, it is fit the matter should have such a disposition to putrefaction as is required for the generation of such a creature as they would make the *Dracunculus* to be: It is fit the helping causes should concur as assistants to the principalls in the action. And it is meete the place should be opportune or fit.

Naturall Melancholicke humor is most unapt to putrifie.

Stinke an unseparable companion to putrifaction.

But there may be many causes found which may give life to the *Dracunculi*, for by the common consent of all those who have written of them, their generation proceedes from an humor melancholicke, terrestriall and grosse, which by its qualities both by the first coldnesse and driness, as also by the second, that is Aciditie, is not onely thought most unfit of all others for putrefaction, but also is judged to resist putrefaction, as that which is caused by heate and superfluous heate humidity. Besides, if the materiall cause of this disease should be from an humor putrifying and turning by putrefaction into some living creature, it was fit there should be stench also, as being an unseparable accident of putrefaction, for thus the excrements in the guts of which the wormes are generated, doe swell or stinke.

What things usually breed wormes.

Therefore that which exhales from their bodies which are troubled with the *Dracunculi*, should be stinking, as it happeneth to those sicke of the *Pthiriasis* or *Low-sie-evill*. But none of those who have delivered the accidents or symptomes of the *Dracunculi* are found to have made mention hereof. But for the efficient cause whereby so great heat may be rayfed in the places next under the skin, by the efficacy whereof such a creature may be formed of a matter melancholicke and most unapt to putrifie, as they make the *Dracunculus* to be who faine our bodies to be fruitfull monsters; especially seeing the surface of the body is continually ventilated by the small Arteries spread under the skinn, as also by the benefit of insensible transpiration, and breathed with the coolenes of the Aire incompassing us. But now the materiall and efficient causes being defective, or certainly very weake, for the generation of so laborious an effect; what coadjutory cause can yeeld assistance? Can the humidity of meates? for those bodies which are fed with warme and moyst meates, as milke, Cheese, Summer fruits, usually breed wormes, as we are taught by experience in Children.

But on the Contrary, *Avicen* in the place before cited writeth, that meats of a hot and drie temper chiefly breed this kinde of disease, and that it is not so frequent to moyst bodies and such as are accustomed to the Bath, moyst meats and wine moderatly taken. But whether may the condition of the Aire of those regions in which it is as it were, an Endemiall disease, conferre any thing to the generation of such creatures? Certainly for this purpose a cloudy warme and thicke ayre, such as useth to be at the beginning of the Spring when all places resound with frogges, toades and the like creatures bred of putrifaction.

Cap. 83. *Cbir. Gallic.*

But on the Contrary *Iacobus Dalechampius* by the opinion of all the Physicians that have written of the *Dracunculi*, writes that this disease breedeth in the drie and Sun burnt regions of *India* and *Arabia*; but if at the least that part of our body which is next under the skinn should have any opportunity to engender and nourish such creatures, they may be judged to have written that the *Dracunculus* is a living creature with some probability. But if there bee no opportunity for generation in that place, nor capacity for the nourishment of such like creatures as in the guts, if that region of the body be breathed upon with no warmenesse and smothering heat, if it be defiled with none of the grosse excrements, as the gutts usually are, but onely by the subtiller exhalation, which have an easie and insensible transpiration by the pores of the skin, which may seeme to be a just cause of so monstrous and prodigious an effect: but we shall little profit with these engines of reason unlesse we cast downe at once all the Bulwarkes, with which this old opinion of the *Dracunculi* may stand and be defended.

For first they say, why have the ancients expressed this kind of disease by the name of a living thing, that is, of a *Dracunculus* or little Serpent? I answer, because in Physicke names are often imposed upon diseases rather by similitude than from the truth of

of the thing, for the confirmation whereof, the examples of three diseases may suffice, that of the *Cancer*, *Polypus*, and *Elephas*. For these have those names not because any Crabbe, Polypus, or living Elephant may breede in the Body by such like diseases, but because this by its propagation into the adjacent parts represents the feete and clawes of a Crabbe: the other represents the flesh of the Sea-Polypus in its substance; and the third because such as have the Leprosie have their skinnie wrinckled, rough, and horrid with scales and knots, as the skinnie of a living Elephant. So truly this disease of which wee now enquire seemes by good right to have deserved the name *Dracunculus*, because in its whole conformation, colour, quality and production into length and thickeesse it expresseth the image of a Serpent. But whence, will they say (if it be without life) is that manifest motion in the matter? We reply that the humor the cause of this disease is subtrill and hot, and so runnes with violence into the part whence it may seeme to move. But when the *Dracunculi* are separated, why doe they put their heads as it were out of their holes? we answer, in this the ancients have beene very much deceived, because after the suppuration the ulcer being opened, some nervous body being layde bare, thrust forth and subjected it selfe to the sight, which by the convulsive and shaking motion might expresse the crooked creeping of a Serpent. But they will say, paine happens not unlesse to things indued with sence and life, but this *Dracunculus* when he is drawne too violently especially if hee be broken, thereby will cause extreame paine: we doe answer, that the conclusion doth not follow and is of no consequence, for these paines happen not unlesse when the unprovident Surgeon drawes or pulls instead of the *Dracunculus* some nervous or membranous body swolne and replete with an adust humor, whence there cannot but be great paine that part being pulld which is the author of sence. But it is childish to say that the *Dracunculus* feeles, for that it causeth sharpe paines to the living body in which it is. Therefore that at last we may determine something of the nature, essence and generation of these *Dracunculi*, I dare boldly affirme it is nothing else but a tumor and abscesse bred from the heat of the blood in a venenate kinde. Such blood driven by the expulsive facultie through the veines to the Externall parts, especially the limits, that is the Armes and Legges, causeth a tumor round and long often stretched from the joynt of the shoulder even to the wrist, or from the groine even to one of the Anckles with tension, heat, renitency, pricking paine, and a feaver. But this tumor is some whiles stretched forth straight, otherwhiles into oblique and crooked tumors, which hath beene the cause that many taken with this kind of disease, and having their limbes so infolded as with the twinings of a Serpent would say they had a Serpent. I have thus much to say of the *Dracunculi*, especially of those of our owne country.

Why they are called *Dracunculi*.

For the cure, it is not unlike to the cure of a Phlegmon arising from a defluxion, for heere also in like manner the remedies must bee varied according to the foure times of the disease, and the same rule of diet, phlebotomy and purging must be observed which is before prescribed in the cure of a Phlegmon.

The Cure.

The mention of the *Dracunculi* calls to my memorie another kinde of Abscesse, altogether as rare. This our French men name *Cridones*, I thinke a *Crinibus*. i. from hayres: it chiefly troubles children and prickes their backes like thornes. They toss up & downe being not able to take any rest. This disease ariseth from small haire which are scarce of a pins length, but those thicke and strong. It is cured with a fomentation of water more than warme, after which you must presently apply an oyntment made of honey and wheaten flower; for so these haire lying under the skin are allured and drawne forth; and being thus drawne, they must be plucked out with small mullers. I imagine this kinde of disease was not knowne to the ancient Physicians.

So the *Malum pilare* in Aristotle cap. 11. lib. 7. hist. animal.

The End of the Eighth Booke.



OF WOUNDS IN GENERALL.

THE NINTH BOOKE.

CHAP. I.

What a wound is, what the kindes and differences thereof are, and from whence they may be drawne, or derived.



Wound is a solution of Continuity, caused by a stroake, fall, or bite, newly done, bloody, and with putrification, and filth. They also call it a new simple ulcer; for the solution of continuity happens to all parts of the body; but according to the diversity of the parts, it hath divers names amongst the Greekes. For in the flesh it is called *Helcos*, in the bone *Catagma*, in the nerve *Spasma*, in the ligament *Thlasma*, in the vesselles *Apospasma*, in the Muscles *Regma*: and that solution of continuity, which happens in the vessells, their mouths being open, is termed *Anastomasis*, that which happens by erosion, *Anaurosis*; that which is generated by sweating out and transcolation, *Diapedesis*. That these may bee the more easily understood, I have thought good to describe them in the following table.

What a Wound properly is,

Divers appellations of wounds according to the varieties of the parts.

A Table of the differences of Wounds.

| | | | | | | |
|---|---|--|---|---|--|------|
| The differences of wounds are drawne or ta- ken, | From the nature of the parts in which they are made or happen. But these parts are | Either si- milar and these, | Either soft | { | Glandules, | |
| | | | as the | | Flesh, Fat, | |
| | | | Or hard as | | Marrow. | |
| | | | Or of a mid- dle consi- stence, as the | | A Bone, A Gristle: Membranes, Ligaments, Fibers, Vessells, Nerves, Veines, Arteries. | |
| | | Or Orga- nicall and these ei- ther. | Principall | { | Braine, Heart, | |
| | | | as the | | Liver, to which some adde the womb and Testicles. | |
| | | | Or serving the princi- pall, as | | The weason, Lungs, gullet, Stomacke, Guts, Bladder. | |
| | | | Or neither | | The Eares, Nose, Feete, Hands, and other of the same kinde. | |
| | | | | | | from |

| | | |
|---|---------------|---|
| From their proper essence, from whence they are called, | Simple wounds | When there is no complication of any other disease or symptome besides. |
| | Or compound, | When there is a complication of some one or more diseases, which unlesse they be taken away, wee must not hope for to cure the wound. |
| From their quantity according to which they are called, | Great; | Long, Broad, |
| | Indifferent, | Deepe. |
| From their figure, according to which they are named, | Little, | Short, Narrow, |
| | | Superficiarie. |
| | Straight, | |
| | Oblique, | |
| | Cornered. | |

CHAP. II.

Of the causes of Wounds.

Divert denotations from their causes,

ALL things which may outwardly assaile the body with force and violence, may be counted the causes of wounds; which are called Greene, and properly bloody. These things are either animate, or inanimate. The animate, as the bitings, and prickings of beasts. The Inanimate, as the stroake of an arrow, sword, clubb, gunne, stone, a dagger, and all such like things.

From the variety of such like causes, they have divers names: for those which are made by sharpe and pricking things are called punctures: those caused by cutting things, are called wounds or gashes: and those which are made by heavy and obtuse things are named Contusions, or wounds with Contusions.

CHAP. III.

Of the signes of Wounds.

A caution for making resports of Wounds,

Wounds are first knowne by sight, and by the signes drawne from thence. The Chirurgeon ought first and chiefly, to consider, what wounds are curable, and what not; what wounds will scarce admit of cure, and what may be easily cured; for it is not the part of a prudent Chirurgeon, to promise cure in a deadly or dangerous and difficult wound; Least he may seeme to have killed him, whom not the unsufficiencie of the Art, but the greatnesse of the wound hath slaine.

But when the wound is dangerous, but yet without despaire of recovery, it belongs to him to admonish the Patients friends which are by, of the present danger, and doubtfull state of the wound; that if Art shall be overcome by the greatnesse thereof, hee shall not be thought ignorant of the Art, neither to have deceived them.

A Jugling cheating Chirurgeon,

But as this is the part and duty of a good and prudent Chirurgeon, so it is the trick of a cheating and jugling knave, to enlarge small wounds, that so he may seeme to have done a great cure, when it is nothing so.

But it is agreeable to reason, that the Chirurgeon professing the disease easie to be cured, will thinke himselfe in credit bound by such promises and his duty, and therefore seeke all meanes for the quicke recovery of the patient; lest that which was of its owne nature small, may by his negligence become great. Therefore it is expedient, he should know what wounds are to be accounted great.

This

This (as *Galen* saith) is three wayes to be knowne; The first is by the magnitude and principallity of the part affected; for thus the wounds of the Braine, Heart, and of the greater vessels, though small of themselves, yet are thought great. Then from the greatnesse of the solution of continuity; for which cause wounds may be judged great, in which much of the substance of the part is lost in every dimension, though the part be one of these which are accounted servile. Then from the malignitie; through which occasion the wounds of the joynts are accounted great, because for the most part, they are ill conditioned.

Lib. 4. Meth. cap. 6. 1.

Wounds are called great out of three respects.

CHAP. IIII.

Of Prognostickes to be made in Wounds.

W hose Wounds are thought dangerous, wherein any large Nerve, Veine, or Artery are hurt. From the first there is feare of convulsion, but from the other large effusion of the veinous, or arterious blood, whence the powers are debilitated; also these are judged evill, which are upon the arme pitts, groines, leskes, joynts and betweene the fingers; and likewise those which hurt the head or taile of a Muscle. They are least dangerous of all other which wound onely the fleshy substance. But they are deadly which are inflicted upon the Bladder, Braine, Heart, Liver, Lungs, Stomacke and small guts. But if any Bone, Crispe, Nerve or portion of the cheek or prepuce, shall be cut away, they cannot bee restored. Contused wounds are more difficult to cure, than those which are onely from a simple solution of continuity; for before you must thinke to heale them up, you must suppurate and cleanse them; which cannot be done in a short time. Wounds which are round and circular are so much the worse; for there can be no unity unless by an angle, that is, a meeting together of two lines, which can have no place in round wounds, because a circular figure consists of one oblique line. Besides, wounds are by so much thought the greater, by how much their extremes and lipps are the further dis-joynded, which happens to round Wounds. Contrary to these are cornered wounds or such as are made alongst the fibers, as such as may bee easily healed.

What wounds are dangerous.

What least dangerous.
What deadly.
Hip. aphor. 19. Lib. 6.

Why round Wounds are difficult to heale.

Wounds may be more easily healed in young men, than in old; because in them nature is more vigorous, and there is a greater plenty of fruitefull, or good blood, by which the losse of the flesh may be the better and more readily restored, which is slower done in an old body, by reason their blood is smaller in quantity and more dry, and the strength of nature more languide.

Wounds received in the Spring, are not altogether so difficult to heale as those taken in Winter or Summer. For all excesse of heate and cold is hurtfull to them; it is ill for a convulsion to happen upon a Wound, for it is a signe that some Nervous body is hurt; the braine suffering together therewith, as that which is the originall of the Nerves. A Tumor comming upon great Wounds is good; for it shewes the force of nature is able to expell that which is harmefull, and to ease the wounded part. The organick parts wholly cut off cannot againe be united: because a vitall part once severed and plucked from the trunk of the body cannot any more receive influence from the heart as from a roote without which there can bee no life. The loosed continuity of the Nerves, Veines, Arteries, and also the bones, is sometimes restored, not truly, and as they say, according to the first intention, but by the second, that is, by reposition of the like, but not of the same substance. The first intention takes place in the fleshy parts by converting the Alimentary blood into the proper substance of the wounded part. But the second, in the spermatique parts in which the lost substance may be repaired by interposition of some heterogeneous body, which nature, diligent for its owne preservation, substitutes in place of that which is lost: for thus the body, which restores and agglutinats, is no bone but a *Callus*, whose originall matter is from an humor somewhat grosser than that, from whence the bones have their originall and beginning.

Hip. lib. de ul. cer. Hip. aph. 66. lib. 5.

What a *Callus* is and whence it proceeds.

This

Small and
contemptible
Wounds often
prove mortall

Aphor. 1, sect. 1

This humor, when it shall come to the place of the fracture, agglutinateth the ends of the bones together, which otherwise could never bee so knit by reason of their hardnesse. The bones of children are more easily and speedily united by reason of the pliantnesse of their soft and tender substance. Lastly wee must here admonish the Chirurgion, that small Wounds and such as no Artisan will judge deadly, doe divers times kill by reason of a certaine occult and ill disposition of the wounded, and incompassing bodies; for which cause we reade it observed by *Hippocrates*, that it is not sufficient for the Physition to performe his duty, but also externall things must be rightly prepared, and fitted.

CHAP. V.

Of the Cure of Wounds in generall.

The Generall
Indication of
Wounds.



He Chirurgion ought for the right cure of wounds to propose unto himselfe the common and generall indication: that is, the uniting of the divided parts, which indication in such a case is thought upon and knowne even by the vulgar: for that which is dis-joynd desires to bee united, because union is contrary to division. But by what meanes such union may be procured, is onely knowne to the skilfull Artisan. Therefore we attaine unto this chiefe and principall Indication by the benefit of nature as it were the chiefe Agent, and the work of the Chirurgion as the servant of nature. And unlesse nature shall be strong the Chirurgion shall never attaine to his conceived, and wished for end: therefore that he may attaine hereto, he must per forme five things; the first is, that if there bee any strange bodies, as peeces of Wood, Iron, Bones, bruised flesh, congealed blood, or the like, whether they have come from without, or from within the body, and shall be by accident fastened or stucke in the wound, he must take them away, for otherwise there is no union to be expected.

Five things
necessary for
uniting
wounds.

Another is, that he joyne together the lippes of the Wound; for they cannot otherwise be agglutinated and united. The third is, that he keepe close together the joynd lippes. The fourth, that he preserve the temper of the wounded part, for the distemper remaining, it is impossible to restore it to its unity. The fifth is, that he correct the accidents, if any shall happen, because these urging, the Physition is often forced to change the order of the cure.

All strange and externall bodies must bee taken away, as speedily as is possible, because they hinder the action of nature intending unity, especially if they presse or pricke any Nervous body, or Tendon, whence paine or an Abscesse may breede in any principall part, or other serving the principall.

Yet if by the quicke and too hasty taking forth of such like bodies there bee feare of cruell paine or great effusion of bloud, it will bee farre better to commit the whole worke to nature than to exasperate the Wound by too violent hastening.

For nature by little and little will exclude, as contrary to it, or else together with the Pus, what strange body soever shall be containd in the wounded part. But if there shall be danger in delay, it will bee fit the Chirurgion fall to worke quickly, safely, and as mildly as the thing will suffer: for effusion of blood, swooning, convulsion and other horrid symptoms, follow upon the too rough and boystrous handling of Wounds, whereby the patient shall be brought into greater danger than by the wound it selfe.

Therefore he may pull out the strange bodies, either with his fingers, or with instruments, fit for that purpose: but they are sometimes more easily and sometimes more hardly pulled forth, according as the body infixed is either hard or easie to be found or pulled out. Which thing happens according to the variety of the figure of such like bodies; according to the condition of the part it selfe, soft, hard, or deepe, in which these bodies are fastened more straitly or more loosely; and

and then for feare of inferring any worſe harme, as the breaking of ſome Veſſell; but how wee may performe this firſt intention, and alſo the expreſſion of the inſtruments neceſſary for this purpoſe, ſhall be ſhowne in the particular treaties of wounds made by Gun-ſhot, Arrowes and the like.

But the Surgeon ſhall attaine to the ſecond and third ſcope of curing wounds by two and the ſame meanes, that is, by ligatures and ſutures: which notwithstanding before hee uſe, hee muſt well obſerve whether there be any great fluxe of blood preſent, for he ſhall ſtoppe it if it be too violent; but provoake it, if too flow, (unleſſe by chance it ſhall be powred out into any capacity or belly) that ſo the part freed from the ſuperfluous quantity of blood may be leſſe ſubject to inflammation. Therefore the lippes of the wounds ſhall be put together, and ſhall bee kept ſe joyned by ſuture and ligatures: Not truly of all, but onely of thoſe which both by their nature, and magnitude, as alſo by the condition of the parts in which they are, are worthy and capable of both the remedies. For a ſimple and ſmall ſolution of continuity, ſtands onely in neede of the Ligature which we call incarnative, eſpecially, if it be in the Armes or Legges; but that which divides the Muſcles tranſverſly, ſtands in need of both Suture and Ligature; that ſo the Lippes which are ſomewhat farre diſtant from each other, and as it were drawne towards their beginnings, and ends, may bee conjoyned.

Ligatures and Sutures for to conjoyne and hold together the lippes of wounds.

If any portion of a fleſhy ſubſtance by reaſon of ſome great cut ſhall hang downe, it muſt neceſſarily be adjoyned and kept in the place by ſuture. The more notable and large Wounds of all the parts, ſtand in need of Suture, which doe not eaſily admit a Ligature, by reaſon of the figure and ſite of the part in which they are, as the Eares, Noſe, Hairy-ſcalpe, Eie-liddes, Lippes, Belly and Throat.

There are three ſorts of Ligatures, by the joynt conſent of all the Ancients. They commonly call the firſt, a Glutinative or Incarnative; the ſecond Expulſive, the third Retentive. The Glutinative or Incarnative is fit for ſimple, greene, and yet bloody wounds. This conſiſts of two ends, and muſt ſo be drawne, that beginning on the contrary part of the wound, wee may ſo goe upwards, partly croſſing it, and going downewards againe, we may cloſely joyne together the lippes of the Wound. But let the Ligature be neither too ſtrait, leaſt it may cauſe inflammation or paine; nor too looſe, leaſt it be of no uſe, and may not well containe it.

Three ſorts of Ligatures:

What an incarnative Ligature is.

The Expulſive Ligature is fit for ſanious and fiſtulous ulcers, to preſſe out the filth contained in them. This is performed with one Rowler, having one ſimple head; the beginning of binding muſt bee taken from the bottome of the *Sinus*, or boſome thereof; and there it muſt be bound more ſtraightly, and ſo by little and little going higher, you muſt remit ſomething of that rigour, even to the mouth of the Vicer. That ſo (as we have ſaid) the ſanious matter may be preſſed forth.

What an expulſive.

The Retentive Ligature is fit for ſuch parts as cannot ſuffer ſtraight binding, ſuch are the Throat, Belly, as alſo all parts oppreſſed with paine; For the part vexed with paine, abhorreth binding. The uſe thereof, is to hold to locall Medicines. It is performed with a Rowler, which conſiſts ſome whiles of one, ſome whiles of more heads. All theſe Rowlers ought to be of linnen, and ſuch as is neither too new, nor too old; neither too coarſe, nor too fine. Their breadth muſt be proportionable to the parts to which they ſhall bee applyed; the indication of their largeneſſe being taken from their magnitude, figure and ſite. As wee ſhall ſhew more at large in our Tractates of Fractures and Diſlocations.

What the retentive.

What the rowlers muſt be made of.

The Chirurghion ſhall performe the firſt ſcope of curing Wounds, which is of preſerving the temper of the Wounded part, by appointing a good order of Diet by the Preſcript of a Phyſition, by uſing univerſall and locall Medicines. A ſlender, cold, and moyſt Diet muſt be obſerved, untill that time be paſſed, wherein the patient may be ſafe and free from accidents which are uſually feared. Therefore let him bee fed ſparingly, eſpecially if he be plethorick, he ſhall abſtaine from ſalt and ſpiced fleſh, and alſo from wine; If he ſhall be of a Cholerick or Sanguine nature: In ſteed of wine he ſhall uſe the decoction of Barly or Liquerice, or Water and Sugar. He ſhall keepe himſelfe quiet; for reſt is (in *Ceſus* opinion) the very beſt Medicine. Hee ſhall avoyde Venery, Contentions, Brawles, Anger, and other perturbations of the

Why and how the temper of the wounded part muſt be preſerved.

mind. When hee shall seeme to bee past danger, it will bee time to fall by little and little to his accustomed maner of diet and life. Vniverfall remedies are Phlebotomies and purging, which have force to divert and hinder defluxion, whereby the temper of the part might be in danger of change.

In what
wounds blood
letting is not
necessary.

For Phlebotomy it is not alwayes necessary, as in small wounds and bodies, which are neither troubled with ill humours, nor plethoricke: But it is onely required in great wounds, where there is feare of defluxion, paine, *Delirium*, Raving and unquietnesse; and lastly in a body that is Plethoricke, and when the joynts, tendons, or nerves are wounded. Gentle purgations must bee appointed, because the humours are moved and intraged by stronger; whence there is danger of defluxion and inflammation: wherefore nothing is to be attempted in this case, without the advice of a Physitian.

What medici-
nes are to be
judged agglu-
cinative.

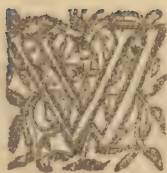
The Topick and particular Medicines are Agglutinative, which ought to be inducd with a drying and astringive quality, whereby they may hold together the lips of the wound, and drive away defluxion, having alwayes regard to the nature of the part and the greatnesse of the disease. The Simple Medicines are *Olibanum*, *Aloes*, *Sarcocolla*, *Bole-Armenick*, *Terra sigillata*, *Sanguis Draconis*, Common and Venice Turpentine, Gumme Elemni, Plantane, Horse-tayle, the greater Comfery, *Parina Volatilis*, and many other things of this kind, which wee shall speake of hereafter in our Antidotary.

The fifth scope of healing wounds, is the Correction of those Symptomes or Accidents which are accustomed to follow wounds, which thing verily makes the Chirurgeon have much to doe; For he is often forced to omit the proper cure of the disease, so to resist the accidents and symptomes, as bleeding, paine, inflammation, a feaver, convulsion, palsie, talking idly, or distraction, and the like. Of which wee shall treat briefly and particularly, after we have first spoken of Sutures as much as we shall thinke fitting for this place.

CHAP. VI.

Of Sutures.

What wounds
stand in no
need of a suture



When Wounds are made alongst the thighes, Legs, and armes, they may easily want Sutures, because the solution of continuity is easily restored by Ligatures, but when they are made overthwart, they require a Suture, because the flesh and all such like parts, being cut are drawne towards the sound parts; whereby it comes to passe that they part the further each from other; wherefore that they may be joyned and so kept, they must be sowed, and if the wound be deepe, you must take up much flesh with your needle; for if you onely take hold of the upper part, the wound is onely superficially healed: but the matter shut up, and gathered together in the bottome of the wound, will cause abscesses and hollow Vicers: Wherefore now wee must treat of making of Sutures.

The first man-
ner of suture.

The forme of
your needle.

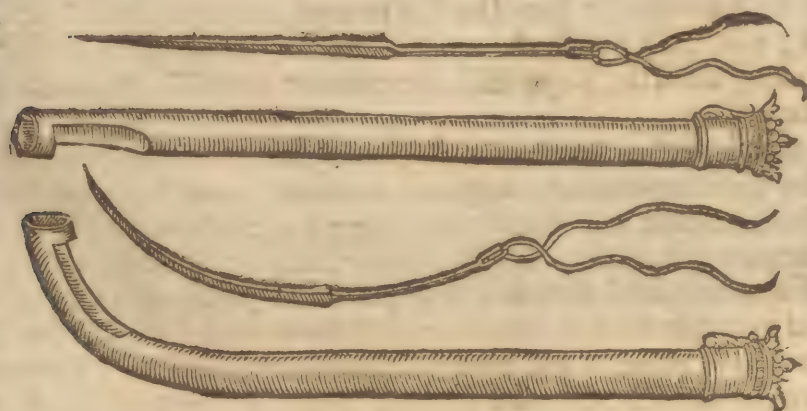
The forme of
the pipe, with a
window in it;

The first, called *Interpunctus*, leaves the distance of a fingers breadth, and therefore is fit for the Greene wounds of the fleshy parts, which cannot be cured with a Ligature, and in which no heterogencous or strange body remaines; It is performed after this manner. You must have a smooth needle with a threed in it, having a three square point, that so it may the better enter the skin, with the head of it some what hollowed, that the threed may lie therein; for so the needle will the better goe through. You must also have a little pipe with a hole or window in the end, which you must hold and thrust against the lip of the wound, that it bee not moved to the one side or other, whilest you thrust thorough the needle. And that wee may see thorough that window when the needle is thrust thorough, and also draw it together with the threed, and withall hold the lip of the wound in more firmly, that it follow not at the drawing forth of the needle and threed. Having thus pierced the lips of the wound, tie a knot, neere to which cut off the threed; least that if any of it bee left

below

below the knot, it may so stick to the Emplasters that it cannot be plucked and separated from them without paine, when they are taken off. But you must note, the first stitch must be thrust through the midst of the wound, and then the second must be in that space which is betweene the midst and one of the ends; but when you have made your stitches, the lips of the wound must not be too closely joyned, but a little space must be left open betweene them, that the matter may have free passage forth, and the inflammation and paine may be avoyded: otherwise if they shall be closely joyned together without any distance betweene, a tumor after arising when the matter shall come to suppuration, the lips will be so much distended that they may easily be broken by the stitnesse of the threed. But you must neither take hold of too much nor too little flesh with your needle, for too little will not hold, and too much causeth paine and inflammation. And besides leaves an ill favoured scarre. Yet in deepe wounds, such as are those which are made in the thicker Muscles, the needle must be thrust home, that so it may comprehend more of the fleshy substance; least the thred drawne away by the weight of the flesh not taken hold of, may bee broken. But oft times wounds are seene made in such places as it will be needfull, the Chirurgeon should have a crooked needle and pipe, otherwise the Suture will not succcede according to his desire. Wherefore I have thought good to set forth both their figures, that you may use either as occasion shall serve.

*The Figure of Pipes with fenestels in them, and
Needles fit for Sutures.*



The second Suture is made just after the same manner as the Skinners sowe their fells or furs. And the guts must be sowed with this kind of Suture, (if they shall be at any time wounded) that the excrements come not forth by the wound. The 2. manner of Suture,

The third Suture is made by one or more needles having threed in them, thrust through the wound, the threed being wrapped to and againe at the head and the point of the needle, as boyes use to fasten their needle, for feare of losing it, in their caps, or clothes. This kind of Suture is fit in the curing and healing of Hare-lips, as we shall shew you hereafter expressed by a Figure. The third manner of Suture,

The fourth kind of Suture is tearmed *Gastrographia*, invented for the restoring and uniting the great Muscles of the *Epigastrium*, or lower belly, cut with a great wound together with the *Peritoneum* lying under them. The manner whereof we will shew in due place. The 4. kind of Suture termed *Gastrographia*,

The fifth kind is called the Dry Suture, which we use onely in the wounds of the face, which also we will describe in its proper place. The 5. kind called the Dry Suture,

CHAP. VII.

Of the Flux of blood, which usually happens in wounds.

The signes of
blood flowing
from an artery



It times great bleeding followes upon wounds, by reason of some vessell cut, broken, or torne, which there is neede to heale and helped diligently, because the blood is the treasure of nature, without which life cannot consist. The Blood which floweth from an Artery, is thus knowne. It is more subtile, it runs forth as it were leaping, by reason of the vitall spirit contained together with it in the Arteries. On the contrary that which floweth from a Veine is more grosse, blacke, and flow. Now there are many wayes of stanching blood.

The first way
of staying
bleeding.

The first and most usuall is that, by which the lips of the wound are closed, and unlesse it be somewhat deepe, are contained by Medicines which have an astringent, cooling, drying, and glutinous faculty; As *terra sigill. Boli Armeni, ana. ʒ. ʒ. thuris, Mastichis, Myr ha, Aloes, ana. ʒ. ij. Farina velat. molend. ʒ. j. Fiat pulvis qui albumine ovi excipiatur.* Or *R. Thuris & Aloes, ana. partes aequales.* Let them bee mixt with the white of an Egge, and the downe of a hare, and let the pledgets bee dipped in these Medicines, as well those which are put unto the wound as those which are applied about it. Then let the wound be bound up with a double clop and fit Ligature, and the part bee so seated as may seeme the least troublesome and most free from paine.

The 2. manner
of stanching it.

But if the blood cannot be staid by this meanes, when you have taken off all that covereth it, you shall presse the wound and the orifice of the Vessell with your thumbe, so long untill the blood shall bee concrete about it, into so thick a clott as may stop the passage.

The 2. way by
binding of the
vessels.

But if it cannot be thus staid, then the Suture (if any be) must be opened, and the mouth of the Vessell towards the originall or roote, must bee taken hold of, and bound with your needle and threed, with as great a portion of the flesh as the condition of the part will permit. For thus I have staid great bleedings, even in the amputation of members, as I shall shew in fit place. To performe this worke, wee are often forced to divide the skin which covereth the wounded Vessell. For if the Iugular veine, or Artery be cut, it will contract and withdraw it selfe upwards and downwards. Then the skinne it selfe must bee laid open under which it lieth, and thrusting a needle and threed under it, it must be bound as I have often done. But before you loose the knot, it is fit the flesh be growne up, that it may stop the mouth of the Vessell, least it should then bleed.

An admonitiō

The 4. way by
Escharoticks.

But if the condition of the part shall be such as may forbid this comprehension, and binding of the Vessell, we must come to *Escharoticks*, such as are the powder of burnt *Vitriol*, the powder of Mercury, with a small quantity of burnt *Allume*; and *Cawsticks* which cause an *Escar*. The falling away of which must be left to Nature, and not procured by art, least it should fall away before that the orifice of the Vessell shall be stopt with the flesh, or clotted blood.

The 5. way by
cutting off the
vessels.

But some times it happens that the Chirurgion is forced wholly to cut off the vessell it selfe, that thus the ends of the cut vessell withdrawing themselves, and shrincking upwards and downewards, being hidden by the quantity of the adjacent and incompassing parts, the fluxe of blood, which was before not to bee staid, may bee stopped with lesse labour. Yet this is an extreame remedy and not to bee used, unlesse you have in vaine attempted the former.

CHAP. VIII.

Of the paine which happens upon wounds.



He paines which followes upon wounds ought to be quickly aswaged, because nothing so quickly dejects the powers; and it alwayes causes a defluxion, of how good soever a habite and temper the body be of; for Nature ready to yeeld assistance to the wounded part, alwayes sends more humours to it, than are needfull for the nourishment thereof, whereby it comes to passe that the defluxion is easily encreased, either by the quantity, or quality, or by both.

Paines weak-
ken the body,
and causes de-
fluxions.

Therefore to take away this paine the author of defluxion, let such Medicines bee applied to the part as have a repelling and mitigating faculty; as *R. Olei Myrtini, & Rosarum, ana. ʒ. ij. Cera alb. ʒ. j. Farina hordei, ʒ. ʒ. Boli armeni, & terra sigillat. ana. ʒ. vj.* Melt the Waxe in the Oyles, then incorporate all the rest, and according to Art, make a Medicine to be applyed about the part, or *R. Emplast. Diacalcitb. ʒ. iv. Ole. Rosar. & aceti, ana. ʒ. ʒ. liquefiant simul*, and let a Medicine be made for the fore mentioned use. Irrigations of oyle of Roses and Mirtiles, with the white of an Egge, or a whole Egge added thereto, may serve for lenitives, if there be no great inflammation; Rowlers and double cloathes moistened in Oxycrate, will be also convenient for the same purpose. But the force of such Medicines must be often renewed, for when they are dried, they augment the paine. But if the paine yeld not to these, we must come to narcoticke Medicines, such as are the Oyle of Poppy, of Mandrake, a Cataplasme of Henbane and Sorrell, adding thereto Mallowes and Marsh-mallows, of which we spoke formerly in treating of a Phlegmon.

Divers Ano-
dines or medi-
cines to aswage
paine.

Lastly, we must give heed to the cause of the paine, to the kind and nature of the humour that flowes down, and to the way which Nature affects; for according to the variety of these things, the Medicines must be varied, as if heat cause paine, it will be aswaged by application of cooling things; and the like reason observed in the contrary, if Nature intend suppuration, you must helpe forwards its endeavours with suppurating Medicines.

CHAP. IX.

Of Convulsion by reason of a wound.



Convulsion is an unvoluntary contraction of the Muscles (as of parts moveable at our pleasure, towards their originall, that is, the Braine and Spinall Marrow, for by this the Convulsed member or the whole body (if the Convulsion be universall) cannot be moved at our pleasure. Yet motion is not lost in a Convulsion as it is in a Palsie, but it is onely depraved: and because sometimes the Convulsion possesseth the whole body, otherwhiles some part thereof, you must note that there are three kinds of Convulsions in Generall.

Whata Con-
vulsion is.

The first is called by the Greekes, *Tetanos*, when as the whole body growes stiffe like a stake that it cannot be moved any way.

Thres kinds
of an universal
Convulsion.

The second is called *Opisthotonos*, which is when as the whole body is drawn backwards.

The third is termed *Emprostotonos*, which is when the whole body is bended or crooked forwards. A particular Convulsion is, when as the Muscle of the Eye, Tongue, and the like parts which is furnished with a Nerve, is taken with a Convulsion. Repletion or Inanition, Sympathy or consent of paine cause a Convulsion. Abundance of humours cause Repletion, dulling the body by immoderate eating and drinking, and omission of exercise, or any accustomed evacuation, as suppression of

Three causes
of a convulsion
Causes of Re-
pletion.

the Hemorrhoids and Courses: for hence are such like excrementious humours drawne into the Nerves, with which they being replete and filled, are dilated more than is fit, whence necessarily becoming more short, they suffer Convulsion. Examples whereof appeare in Leather and Lute or Viol-strings, which swolne with moysture in a wet season are broken by repletion.

Causes of Inanition,

4pb. 26. sec. 2.

Causes of convulsion by constant of paine.

Signes of a convulsion.

Immoderate vomitings, fluxes, bleedings, cause Inanition or Empriness, wherefore a Convulsion caused by a wound, is deadly: as also by burning feavers. For by these and the like causes, the inbred and primigenious humidity of the Nerves is wasted, so that they are contracted like leather which is shrunk up, by being held too neere the fire, or as fiddle strings which dried with Summers heat, are broken with violence; such a Convulsion is incurable: For it is better a Feaver follow a Convulsion, than a Convulsion a Feaver; as we are taught by Hippocrates, so that such a Feaver bee proportionall to the strength of the convulsifick cause, and the Convulsion proceede from Repletion; for the abundant and grosse humour causing the Convulsion is digested and wasted by the feaverish heat.

The causes of a Convulsion by reason of paine, are either the puncture of a Nerve, whether it be by a thing animall, as by the biting of a venemous beast; or by a thing inanimate, as by the prick of a needle, thorne, or pen-knife: or great and piercing cold, which is hurtfull to the wounds, principally of the nervous parts; whereby it comes to passe, that by causing great and bitter paine in the nerves they are contracted towards their originall, that is, the Braine, as if they would crave succour from their parents in their distressed estate. Besides also, an ill vapour carried to the braine from some putrefaction so vellicateth it, that contracting it selfe, it also contracteth together with it all the Nerves and Muscles, as we see it happeneth in those which have the falling sicknesse. By which it appeares that not onely the braine it selfe suffereth together with the Nerves, but also the Nerves with the Braine. The signes of a Convulsion are difficult, painefull and depraved motions, either of some part or of the whole body, turning aside of the Eyes and whole Face, a Contraction of the Lippes, a drawing in of the Cheekes as if one laughed, and an Univerfall sweat.

CHAP. X.

The cure of a Convulsion.

The cause of a Convulsion by Repletion.



He cure of a Convulsion, is to bee varied according to the variety of the Convulsive cause, for that which proceeds from Repletion must be otherwise cured, than that which is caused by Inanition, and that which proceeds of paine, otherwise than cyther of them. For that which is caused by Repletion is cured by discussing and evacuating Medicines: as by diet conveniently appointed, by purging, bleeding, digestive locall Medicines, exercise, frictions, sulphurous Baths and other things appointed by the prescription of some learned Physicion which shall oversee the cure, which may consume the superfluous and excrementitious humours that possesse the substance of the Nerves, and habit of the body. The locall remedies are Oyles, Vnguent and Liniments, with which the Neck, Back-bone and all the contracted parts shall be annointed. The Oyles are, the Oyle of Foxes, Bayes, Camomill, Wormes, Turpentine, of *Costus*, of *Castoreum*: The Oyntments are *Vnguentum Arragon*, *Agrippa de Althaa*, *Martiatum*. This may be the forme of a Liniment, *R. Olei Chamam. & Laurin. ana. ʒ. ii. Olei Vulp. ʒ. j. Vnguenti de Althaa & Marti. an. ʒ. ʒ. B. Axungia vulpis ʒ. j. Aqua vita ʒ. j. B. Cera quantum sufficit.* Make a Liniment for your use, or *R. Olei Lumbric. de Spica & de Castoreo, ana. ʒ. iiij. Axng. hum. ʒ. j. Sulphuris vivi ʒ. ʒ. B. Cera quantū sufficit.* Make a Liniment, or *R. Vnguenti Martiati, & Agrip. an. ʒ. iiij. Olei de Terebint. ʒ. j. B. Olei Salvia ʒ. ʒ. B. Aqua vita ʒ. j. Cera ʒ. j. B. fiat linimentum.* But this disease is cured by slender diet, and sweating with the Decoctions of *Guaiacum*, because by these remedies the grosse, tough, and viscid excrements, which are in fault, are digested.

A Convulsion proceeding of Inanition is to be cured by the use of those things, which

which doe wholesomly and moderately nourish. And therefore you must prescribe a diet consisting of meats full of good nourishment, as broaths and cullices of Capons, Pigeons, Veale, and Mutton, boyling therein Violet and Mallow leaves. Conserues must be ordained, which may strengthen the debilitated powers, and humect the habit of the body, such as are, the Conserues of Buglosse, Violets, Borage and water Lillies. The following broath will be profitable, *R. Lactuce, Buglos. & portul. ana. M. j. quatuor seminum frigid. major. an. ʒ. ʒ. seminis Barberis, ʒ. j.* Let them all be boiled with a Chicken, and let him take the broath every morning. If thirst oppresse him, the following Iulep will be good. *R. Aquae rosae. ʒ. iv. Aquae viol. lb. ʒ. Saccari albi/semi ʒ. vj. fiat Iulep, utatur in suc.* If the patient be bound in his body, emollient and humecting Clysters shall bee appointed, made of the decoction of a sheeps head and feet, Mallowses, Marsh Mallowses, Pellitory of the wall, Violet leaves, and other things of the like faculty; or that the remedy may be more ready and quickly made: let the Clysters be of Oyle and Milke. Topick remedies shall be Liniments and Bathes. Let this be the example of a Liniment. *R. Olei Viol. & Amygdal. dulc. ana. ʒ. ij. Olei Lillior. & Lumbic. ana. ʒ. j. Axungia porci recentis, ʒ. iiij. Cera nova quantum sufficit, fiat Linimentum,* with which let the whole spine and part affected be annointed: This shall bee the forme of an emollient and humecting Bath. *R. Fol. Malva, Bis Malva, Pariet. ana. M. vj. Seminis Lini & fœnug. ana. lb. ʒ. Coquantur in Aqua communis, addendo Olei Lillior. lb. viij.* Make a Bath: Into which let the patient enter when it is warme. When he shall come forth of the Bath, let him be dried with warme Clothes, or rest in his bed avoyding sweat. But if the patient be able to undergoe the charge, it will be good to ordaine a Bath of Milk, or Oyle alone, or of them equally mixt together.

The cure of a Convulsion caused by inanition.

An Emollient Liniment for any Convulsion.

An Emollient and humecting Bath.

CHAP. XI.

Of the cure of a Convulsion, by sympathy and paine.



Convulsion which is caused both by consent of paine and Communication of the affect, is cured by remedies which are contrary to the dolorifique cause. For thus if it proceede from a puncture or venomous bite, the wound must be dilated and enlarged by cutting the skin, that so the venenate matter may flow forth more freely, for which purpose, also Medicines which are of a thin and liquid consistence, but of a drying and digestive faculty shall be powred in, to call forth & dissolve the virulency, as Treacle & Mithridate, dissolved in *Aqua vite*, with a little of some Mercuriall powder: for this is a noble Antidote. Also cupping glasses and scarrifications will be good. Lastly the condition of all dolorifique causes, shall bee oppugned by the opposition of contrary remedies, as if paine by reason of a pricked Nerve or Tendon, shall cause a Convulsion, it must presently be resisted by proper remedies, as Oyle of Turpentine, of *Euphorbium*, mixt with *Aqua vite*, and also with other remedies appropriated to punctures of the Nerves. If the paine proceede from excesse of cold, because cold is hurtfull to the Braine, the Spinall marrow, and Nerves, the patient shall bee placed in a hot aire, such as that of a Hot-house or Stove, all the Spine of his back and Convulsed parts, must be annoynted with the hot Liniments above mentioned: For that is much better, than suddenly to expose him from the conceaved convulsifike, cause to a most hot fire or warme Bath. In the meane time the Chirurgion must take diligent heede, that as soone as the signes of the Convulsion to come, or already present, or at hand, doe shew themselves, that he put a stick betweene the patients teeth, least they bee fast locked by the pertinacious contraction of the Iawes: for many in such a case have bit off their tongues, for which purpose he shall bee provided of an instrument called *Speculum Oris*, which may be dilated and contracted according to your mind by the meanes of a screw, as the figures underneath demonstrate, the one presenting it open and somewhat twined up, and the other as it is shut.

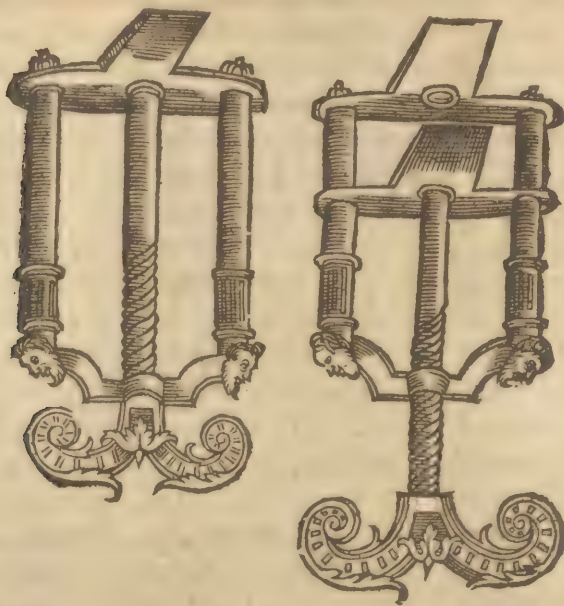
The cure of a Convulsion by a puncture, or bite.

A worthy Antidote.

You must hinder the locking of the teeth.

The

*The Figure of a Speculum Oris, to open the teeth
when they are locked or held fast together.*



CHAP. XII.

Of the Palsie.

What a Palsie
is.

The differen-
ces thereof.

How it diffe-
rs from a
Convulsion.

The causes.



He Palsie is the resolving or mollification of the Nerves, with privation of sense and motion, not truly of the whole body, but of the one part thereof, as of the right or left side. And such is properly named the Palsie: for otherwise and lesse properly the resolution of some one member is also called the Palsie. For when the whole body is resolved, it is an Apoplexy. Therefore the Palsie sometimes takes halfe the body, otherwhiles the uper parts which are betweene the navell and the head, otherwhiles the lower which are from the navell to the feet; sometimes the tongue, gullet, bladder, yard, eyes, and lastly any of the particles of the body.

It differs from a Convulsion in its whole nature. For in a Convulsion, there is a contention and contraction of the part, but in this a resolving and relaxation thereof: besides, it commonly happeneth that the sense is either abolished or very dull, which usually remaines perfect in a Convulsion. There are some which have a pricking, and as it were great paine in the part.

The causes are internall or externall, the internall are humors obstructing one of the ventricles of the braine, or one side of the spinall marrow, so that the Animall faculty, the worker of sense and motion, cannot by the Nerves come to the part to performe its action. The external causes are a fall, blow, and the like injuries, by which oft times the joynts are dislocated, the spinall marrow wrested aside, and constrictions and compressions of the *Vertebra* arise, which are causes that the Animall spirit cannot come to the Organes in its whole substance. But it is easy by skill in Anatomy perfectly to understand by the resolved part the seat of the morbidique cause, for when there is a Palsie properly so called, that is when the right, or left side is wholly seized upon, then you may know that the obstruction is in the braine, or spinall marrow; but if the parts of the head being untoucht, either of the sides being wholly resolved, the fault remaines in the Originall of the spinall marrow; if the armes bee taken with this disease, we may certainly think that the matter of the disease lies hid in the 5. 6. and 7. *Vertebra* of the neck. But if the lower members languish, we must judge the Paralitick cause to be contained in the *Vertebra* of the loynes and holy bone. Which thing the Chirurgion must diligently observe that he may alwaies have recourse to the originall of the disease. The Palsie which procedes from a Nerve cut,

or

or exceedingly bruised, is incurable, because the way to the part by that meanes is shut against the Animall spirit. Old men scarce or never recover of the palsie, because their native heat is languid, and they are oppressed with abundance of excrementitious humors, neither doth an inveterat palsie which hath long possessed the part, neither that which succeeds an Apoplexy, yeeld us any better hope of cure. It is good for a feaver to come upon a Palsie, for it makes the dissipation of the resolving and relaxing humor, to be hoped for. When the member affected with the palse, is much wasted, and the opposite on the contrary, much encreased in quantity, heat and colour, it is ill: For this is a signe of the extreame weakenesse of the afflicted part, which suffers it selfe to be defrauded of its nourishment, all the provision flowing to the sound or opposite side.

It is good for a feaver to happen upon a Palsie.

CHAP. XIII.

Of the cure of the Palsie.

IN the cure of the Palsie we must not attempt any thing, unlesse we have first used generall remedies, diet and purging; all which care lyeth upon the learned and prudent Physition. The Decoction of *Guaicum* is very fit for this purpose, for it procures sweat and attenuates, digests and drieth up all the humidity which relaxeth the nerves: but when sweat doth not flow, it shall not be unprofitable to put about the resolved members, bricks heated red hot in the fire and quenched in a decoction of Wine, Vineger, and resolving herbs, or also stone bottles, or Oxe and Swines bladders, halfe filled with the same decoction; for such heat which is a Quall resuscitateth & strengtheneth the heat of the part, which in this disease is commonly very languid: Then the Patient shall go into a Bathing-tub, which is vailed or covered over just as we have described in our Treatise of Bathes, that so he may receive the vapour of the following Decoction. *R. Fol. Salvia, Lavend. Lauri major. Absinth. Thym. Angelica, Ruta, ana. M. B. Florum Chamem. Melil. Anethi, Anthos. ana. P. ij. Baccar. Laur. & Juniper. Conquassatar. ana. ʒ. j. Caryophyl. ʒ. ij. Aqua fontana & Vini albi, ana. lb. iv.* Let them be all put in the Vessell mentioned in the Treatise lately described for use. The patient shall keepe himselfe in that Bathing-tub, as long as his strength will give him leave, then let him be put into his bed well covered, where he shall sweat againe, bee dried and rest. Then let him be presently anointed with the following ointment, which *Leonellus Faventinus* much commends, *R. Olei Laurini & de Terebinth. ana. ʒ. iij. Olei Nardini & petrolei, ana. ʒ. j. Vini malvatici, ʒ. iv. Aquæ vitæ, ʒ. ij. Pyrethri, Piperis, Synap. Granor. Junip. Gummi hederæ, anacard. Ladani puri, an. ʒ. j. B. Terantur & misceantur omnia cum Oleis & Vino: bulliant in vasi duplici usque ad Vini consumptionem, facta forti expressione, adde Galbani, Bdellii, Euphorbi, Myrrha, Castorei, adipis ursi, Anatis, Ciconia, an. ʒ. ij.* Make an ointment in forme of a liniment, adding a little wax if need shall require. Or you shall use the following remedy approved by many Physitions, *R. Myrrha & alces. Spicanardi, Sanguinis draconis, thuris, opopanax, Bdellii, Carpobalsami, amomi, sarcocollæ, croci, mastic. gummi arabici, styrac. liquida, ladani, castorei, ana. ʒ. i. Moschi, ʒ. j. aquæ vitæ, ʒ. j. Terebinthina veneta, ad pondus omnium, pulverabuntur pulverisanda & gummi eliquabuntur cum aqua vitæ & aceti tantillo.* And let them all be put in fit vessels, that they may be distilled in *Balneo Maria*, and let the spine of the back, and paralytick limbes be anointed with the liquor which comes from thence. I have often tried the force of this following Medicine. *R. rad. Angel. Treos. floren. gentian. cyperi, ana. ʒ. j. Calami aromatici. Cinam. Caryophyl. nucis Mosch. macis, ana. ʒ. ij. Salvia, major. Iue arthritica, Lavend. rorism. satureia, puleg. calament. mentastri, ana. M. B. florum chamam. melil. hyperic. anthos. sachad. ana. P. j. Concisa omnia contundantur. & in Aqua vit. & Vini malvat. an. lb. ij. infundantur.* And let them be distilled in *Balneo Maria*, like the former, let the affected parts be moistened with the distilled liquor, of which also you may give the patient a spoone full to drinke in the morning with some Sugar. For thus the stomach will be heated, and much phlegme contained therein as the fuell of this disease, will be consumed.

The decoction of *Guaicum* is good for a Palsie.

Things actually hot good for to be applied to paralyticke members.

Leon. Faventinus his ointment.

An approved ointment for the Palsie.

A distilled water good to wash them outwardly, & to drinke inwardly.

Exercises and
frictions.

Chymicall
pyles.

You must also appoint exercises of the affected parts and frequent and hard frictions, with hot linnen clothes, that the native heat may be recalled and the excrements contained in the parts digested: You may also use the Chymicall oyles of Rosemary, Tyme, Lavander, Cloves, Nutmegs, and lastly of all spices, the maner of extracting, whereof we shall hereafter declare in a peculiar Treatise.

CHAP. XIV.

Of Sowning.

What Sown-
ing is,

Three causes
of sowning.

Sowning is a suddaine and pertinacious defect of all the powers, but especially the Vitall; In this the Patients lie without motion and sense, so that the Ancients thought that it differed from death onely in continuance of time. The cause of sowning, which happens to those that are wounded, is bleeding, which causeth a dissipation of the spirits: or feare which causeth a suddaine and joint retirement of the spirits to the heart. Whence followes an intermission of the proper duty as also of the rest of the faculties, whilest they being thus troubled, are at a stand. Also Sowning happens by a putrid and venenate vapour, carried to the heart by the Arteries, and to the Braine by the Nerves; by which you may gather that all sowning happens by three causes. The first is, by dissipation of the spirits and native heat, as in great bleeding. And then by the oppression of these spirits by obstruction, or compression as in a feare, or tumult; For thus the spirits fly back hastily from the surface and habit of the body, unto the heart and center. Lastly, by corruption, as in bodies filled with ill humors, and in poysonous wounds. The signes of Sowning are Palenes, a dewy and sudden sweat arising, the failing of the pulse, a sudden falling of the body upon the ground without sense & motion, a coldnesse possessing the whole body, so that the Patient may seeme rather dead, than alive. For many of these who fall into a sowne dye unlesse they have present helpe.

The cure of
sowning caus-
ed by dissipa-
tion of spirits.

The cure of
sowning caus-
ed by a vene-
nate aire.

The cure of
sowning cau-
sed by oppres-
sion and ob-
struction;

Therefore you shall helpe them, if when they are ready to fall, you sprinkle much cold water in their face, if that the sowning happen by dissipation of the spirits, or if they shall be set with their faces upwards, upon a bed or on the ground, as gently as may be; and if you give them bread dipt in wine to hold and chew in their mouths. But if it be caused by a putrid vapour and poysonous aire, you shall give them a little Mithridat or Treacle in *Aqua vite* with a spoone, as I usually do to those which have the plague, or any part affected with a Gangrene, or sphacell. But if the patients cannot be raised out of their sownes, by reason of the pertinacious oppression and compression of the spirits about the heart, you must give them all such things as have power to diffuse, call forth and resuscitate the spirits, such as are, strong wines to drink, sweet perfumes to smell: You must call them by their owne name, lowd in their care, and you must pluck them somewhat hard by the haire of the Temples, and neck. Also rub the temples, nostrils, wrists and palmes of the Hands with *Aqua vite*, wherein Cloves, Nutmegs, and Ginger have beene steeped.

CHAP. XV.

Of Delirium (i.) Raving, Talking idly or Doting.

What a Symp-
tomaticall
Delirium is.
The causes
thereof.

Why the brain
suffers with
the midriffe.

Doting, or talking idly, here is used for a symptome which commonly happeneth in feavers caused by a wound, and inflammation; and it is a perturbation of the phantasie, and function of the mind, not long induring. Wherefore such a doting happens upon wounds, by reason of vehement paine, and a feaver, when as the nervous parts as the joynts, stomach, and middriffe shall be violated.

For the Ancients did therefore call the Middriffe *Phrene*, because when this is hurt as if the mind it selfe were hurt, a certaine phrensie ensues, that is, a perturbation of the Animall faculty, which is employed in ratiocination; by reason of the community which the *Diaphragma* hath with the Braine, by the nerves, sent from the sixth

Conjuga-

Conjugation, which are carried to the stomach. Therefore doting happens by too much bleeding, which causeth a dissipation of the spirits, whereby it happens that the motions and thoughts of the mind erre, as we see it happens to those who have bled much in the Amputation of a member. And it happens by the puncture of a venomous beast, or from seed retained or corrupted in the wombe, or from a Gangreen or Sphacel, from a venenate and putrid aire carried up to the braine, or from a sudden tumult and teare. Lastly, what things soever with any distemper especially hot, do hurt and debilitate the minde. These may cause doting by the afflux of humors, specially cholerick, by dissipation, oppression or corruption of the spirits. Therefore if it shall

The Cure.

proceede from the inflammation of the braine, and *Meninges* or Membranes therof; after purging and blood letting by the prescription of a Physition, the haire being shaved or cut off, the head shall be fomented with rose vinegar, and then an Emplaster of *Diacalcithea* dissolved in oyle and vinegar of Roses, shall be laid thereupon. Sleep shall be procured with Barley creames, wherein the seeds of white Poppy have been boyled, with broaths made of the Decoction of the cold seedes of Lettuce, Purslane, Sorrell and such like. Cold things shall be applyed to his nostrils, as the seeds of Poppy gently beaten with Rose-water and a little vinegar. Let him have merry and pleasant Companions that may divert his mind from all cogitation of sorrowfull things, and may ease and free him of cares, and with their sweet intreaties may bring him to himselfe againe. But if it happen by default of the spirits, you must seeke remedy from these things which have beene set downe in the Chapter of Sowing.

The End of the Ninth Booke.







OF THE GREENE AND BLOODY VVOVND OF EACH PART.

THE TENTH BOOKE.

CHAP. I.

Of the kinds or differences of a broken Scull.



Now that we have briefly treated of wounds in generall, that is, of their differences, signes, causes, prognosticks and cure, and also shewed the reason of the accidents and symptomes which usually follow and accompany them; it remaines that we treat of them as they are incident to each part, because the cure of wounds must be diversly performed according to the diversity of the parts. Now we will begin with the wounds of the head. Therefore the head hath the hayry scalpe lightly bruised without any wound, otherwhiles it is wounded without a Contusion, and sometimes it is both contused and wounded: but a fracture made in the Scull, is sometimes superficial, sometimes it descends even to the *Diploe*, sometimes it penetrats through the 2. Tables, and the Meninges into the very substance of the Braine; besides, the braine is oft times moved and shaken with breaking of the internall veines, and diverse symptomes happen when there appeares no wound at all in the head: of all, and every of which we will speak in order, and adde their cure, especially according to the opinion of the divine *Hippocrates*. He in his Booke of the wounds of the head, seemes to have made 4. or 5. kinds of fractures of the Scull. The first is called a fissure or fracture, the 2. a contusion or collision, the 3. is termed *Effractura*, the 4. is named *Sedes*, or a seat; the 5. (if you please to adde it) you may call a Counterfissure, or as the interpreter of *Paulus* calls it, a *Resonitus*. As when the bone is cleft on the contrary side, to that which received the stroke. There are many differences of these 5. kinds of a broken Scull. For some fractures are great, some small, and others indifferent; some runne out to a greater length or breadth; others are more contracted; some reside only in the superficies; others descend to the *Diploe*, or else pierce thorough both the Tables of the Scull; some run in a right line, others in an oblique and circular; some are complicated amongst themselves, as a fissure is necessarily and alwayes accompanied with a Collision or Contusion; and others are associated with diverse accidents, as paine, heat, swelling, bleeding and the like. Sometimes the Scull is so broken, that the membrane lying under it, is pressed with shivers of the bone, as with pricking needles. Somewhiles none of the bones falls off. All which differences are diligently to be observed, because they force us to vary the cure, and therefore for the helpe of memory, I have thought good to describe them in the following Table,

The differences of a broke head.

The kinds of a broken Scull out of *Hippocrates*.

Differences from their quantity.

Differences from their figure.

From their complication.

A Table of the fractures of the Scull.

| | | | | | |
|---|---|--|---|---|---|
| <p>A fracture, or solution o, continuity in the Scull is caused either, by</p> | <p>Contusion, that is, a collision of a thing bruising, hard, heavy and obdurate, which shall fall or bee smitten against the head, or against wch the head shall bee knocked, so that the broken bones are divided, or</p> | <p>Keepe their naturall figure and site, touching each other, whence proceeds that fracture of the Scull which is called a fissure, which is</p> | <p>Or obscure and not manifest, when as not the part which received the blow is wounded, but the contrary thereto; and that happens either.</p> | <p>Either manifest, & apparent, that is</p> <p>To your sight, To your feeling, Or instrument.</p> <p>In the same bone, and that 2 manner of waies as</p> <p>In divers bones to wit in such men as want sutures, or have them very close, or disposed otherwayes then is fit, and this opposition is, either</p> | <p>On the side, as for example, when the right side of the bone of the forehead is stricken, the left is cleft.</p> <p>Or from above to below, as when not the first Table which received the blow is cleft, but that which is under it.</p> <p>From the right side to the left, and so on the contrary, as when the right Bregma is struck, and the left cleft.</p> <p>From before to behind and the contrary, as when the forehead is smitten, the noddle is cleft.</p> |
| | | | <p>Or betweene both, that is, the obscure & manifest, as that which is termed a Capillary fissure, and is manifested by smearing it over with oyle, and writing inke.</p> | | |
| | | <p>Or loose that site, and that either</p> | <p>Wholy so that the particles of the broken bone removed from their seat, and falling down, presse the membrane, whence proceeds that kind of effracture which reteines a kind of attrition, when as the bone stricken upon is broken as it were into many fragments shivers and scales, either apparent, or hid in the sound bone, so that it is pressed downe.</p> <p>Or in some sort; as when the broken bone is in some part separated, but in others adheres to the whole bone, whence another kind of effracture arises; you may call it Arched, when as the bone so swells up, that it leaves an empty space below.</p> | | |
| <p>Or by incision of a sharpe, or cutting thing, but that incision is made, either by</p> | | <p>Succission, when the bone is so cut, that in some part it yet adheres to the sound bone.</p> <p>Rescission, when the fragment falls down wholly broken off.</p> <p>Or Seate, when the marke of the weapon remains imprinted in the wound, that the wound is of no more length, nor breadth than the weapon fell upon.</p> | | | <p>Another</p> |

Another Table of the differences of a fractured Skull.

Simple, as when they are found solitary and by themselves.

Their nature, according to which fractures are called,

Compound and that either

Naturally with themselves, as a contusion, or collision with incision, a fissure with an effraction.

Or

with other symptomes, as swelling, paine, heat, bleeding, convulsion and the like.

Their Quantity whence they are called, great, indifferent and small, according to the triple dimension of length, breadth and profunditie.

The differences of fractures common to these of all other parts are drawne, either from

Their figure, from whence they are called.

Right, Oblique, Transverse, Round, Triangular.

Their site, whence they are termed on the fore or backe, or the right or left, or the upper or lower part; or superficially and profound.

The part, whence it is called a Fracture of the Forehead, Nowle, Bregma, and Stony bones; and hence it is judged, what may bee deadly, or hopefull of recovery, easie or difficult to cure.

CHAP. II.

Of the causes and signes of a broken Skull.



He causes of a broken Skull are externall, as a fall, a blow or stroake with any kind of weapon, sharpe, obtruse, heavy, hard, the bitings of Beasts, and many other things of the like kind. But the signes by which we come to know that the Skull is broken, are of two kinds; for some of them are found out by the reasoning and discourse of the mind, other by the sense, as those which lay open the wound to the eye and hand.

The externall causes.

Rationall causes.

Aphor. 50. Sect. 6.

The Rationall signes shew by these things which have happened upon the thing it selfe, whether it be, and of what sort it is. For you may know the Skull is broken, if the patient shall fall down with the stroake, or if he shall fall headlong from a high place upon some hard thing. If for some time after the stroake, he shall lie without speaking, sight, and hearing, if he shall have felt and feele much paine, so that he is often forced to put his hand to the wound. But also the weapon is to be considered, that is, whether it be heavy, obtruse, pricking or sharpe. Also we must consider with what & how great strength the stroake was given, and with how great anger and from what distance the weapon fell. Also he must consider whether the patient received the blow with his head unarmed and naked; whether he fell into a sowne presently after the blow; whether when he came to himselfe, he was in his right senses; whether his eyes were blinded, whether he was troubled with a giddines or dizines, and whether he bled at the nose, mouth, eares, or eyes, and lastly whether he vomited. For Hippocrates writes, that those who have their braine cut, must necessarily have a feaver and vomiting of choler to ensue thereupon, which Galen confirming in his Commentary saith, that the same happens also when the wound comes to the Membranes of the braine.

Also

Lib. 8, cap. 4.

Also a dull sound as from a broken vessell comming from the skull, (the hairy scalpe and *Pericranium* being taken off) and it being lightly smitten upon with an Iron probe, is sayd to be a signe of a fracture thereof, as it is recorded by *Paulus Aegineta*. Truly all these signes make a great conjecture or rather assurednesse that the skull is wounded, and the braine hurt, as which cannot happen unlesse the bone be broken, as *Celsus* hath written. Yet many have had their sculles broken, who had no such signe immediatly after the blow, but this is very seldome. But I doe not thinke fit amongst so many signes, here to omit that which is set downe by *Guido*. If any (saith he) will know in what place the scull is broke, let the patient hold fast betweene his fore teeth, one end of a lute string or thread, and the Chirurgion hold the other in his hand; then let him lightly touch or play upon the string with his fingers; for in the very instant of the sound or stroke, the patient will bee certainly admonished, or perfectly perceive the part of the scull that is broken, and as one come and forst by this sence of paine, will by lifting up his hand make demonstration thereof. As yet I have not beene able to finde the truth hereof by experience, although I have made triall of it in many. Wherefore I cannot say any thing certainly of this signe, as neither of that which is mentioned by *Hippocrates* in *Coac Pras*. In such as you doubt, whether the bones of the scull be broken, or not, you must judge by giving them the stalke of Asphodill, to chaw on both sides of their jawes, but so that you bid them withall observe, whether they perceive any bone to crackle, or make a noyse in their heades, for these which are broken seeme to make a noyse.

Hippocrates
and *Guido*
conjecturall
signes of a
broken scull.

But passing over these things, now let us come to these signes, which may be obvious to our senses.

CHAP. III.

Of the signes of a broken skull, which are manifest to our sense.

Sensible signes
of a broken
scull before
the dividing
of the skinn.



These signes are here sayd to be manifest to sense, which when the bone is bared, manifest the wound to our eyes, fingers and probe. But if the haire stand upon one end in the wound, you may know the bone is broke, because the haire which yeelds to the violence of the blow, cannot be so cut, the bone which resists the stroke being not violated, as it is observed by *Hippocrates*; wherfore we may by the sight of this one thing, before any inspection of the wound it selfe, suspect by a probable conjecture, that the Scull is broken, and perswade the beholders or standers by so much.

Lib. de vulnere
cap.

Moreover we may, before we have cut the skinn acrosse, or baid lare the bone, give a guesse by our feeling, whether the scull be broken, or no, if wee by pressing downe our fingers neere the wound shall perceive the bone either to stand up, or be pressed downe otherwise than it should naturally be.

Whata probe
must be used
in searching
for a fracture.

The skinn being cut crosswise and the bone laid bare, if the fracture be not obvious to the eye, you must trye with your probe, which must neither be too thinn nor too sharpe, least by falling into some naturall cranyes, it may cause us to suspect without any cause that the bone is broken; neither let it be too thick, lest the little clifts may deceive you. If when your probe comes to the bone, it meetes with nothing but that which is smooth and slippery, it is a signe that it is whole.

But on the contrary, if you finde it any thing rough, specially where there is no suture, it shewes the bone is broken. But let the Chirurgion consider, that the fractures are not seldome upon the sutures; and that the sutures have not alwayes one and their naturall site; as also it often comes to passe that the broken cleft, or cut bone can neither be perceived by your sight, nor instrument; wherfore if you thinke there is any such thing, by the rationall signes above mentioned, annointe the place with writing Incke, and oyle, and so you shall find the cracke or clift, by the meanes we shall shew you hereafter.

When you are certaine of the fracture, then you must diligently consider the great-
nesse

ness of the disease, and apply medicines speedily. Verily when a fracture chanceth to light upon any future, the disease is hard to be knowne, unless the fracture be very great, because the sutures by their clifts and roughnesse resemble fractures; wherefore *Hippocrates* saith that he was deceived by them. Now having briefly delivered the differences and signes of a broken scull, it is time to come to the severall kindes thereof, with a Fissure.

Lib. 5. Epid. in Autonomus of Omistam Hippocrates was deceived by the sutures,

CHAP. IIII.

Of a Fissure, being the first kinde of a broken scull.

IF the Chirurgion by the forementioned signes shall know that the scull is broken, or crackt, and if the Wound made in the musculous skin shall not be thought sufficient for ordering the fissure, then must he shave off the haire, and cut with a razour, or incision knife, the musculous skinne with the *Pericranium* lying under it, in a triangular or quadrangular figure to a proportionable bignesse, alwayes shunning, as much as in him lies, the sutures and temples; neither must he feare any harme to ensue hereof; for it is farre better to bare the bone by cutting the skinne, then to suffer the kinde and nature of the fracture to remaine unknowne, by a too religious preservation of the skinne; for the skinne is cured without any great adoe, though pluckt off to no purpose.

Vpon what occasion the hairy scalpe must be cut.

Celsus.

Hippocrates.

For it is much more expedient (in *Hippocrates* opinion) to cure diseases safely and securely though not speedily; than to doe it in a shorter time with feare of relapse and greater inconveniencies. Let this dissection bee made with a razour, or sharpe knife, and if there be any Wound made in the skinne by the weapon, let one of your incisions be made agreeable thereto.

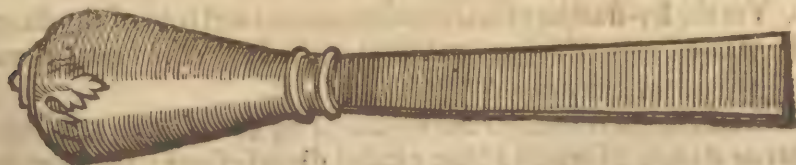
A Razour, or Incision knife.



Now therefore the Musculous skinne together with the *Pericranium* must be divided and cut with a sharpe razour pressed and guided with a strong and stedd hand; then must it be so pluckt from the bone, or scull lying under it, that none thereof remaine upon the bone; for if it should be rent or torne with the Trepane, it would cause vehement feavers with inflammation. You must beginne to pull it backe at the corners of the lines crossing each other with right angles, with this Chissell whose figure you see here expressed.

The manner how to pull the hairie scalp from the broken scull.

A Chissell or Instrument to pull backe or separate the Pericranium from the Scull.



Then you must fill all the wound with boulders of fine soft linte, that so the lippes may be kept further a sunder. But you shall apply upon it medicines fit to stanch blood. But if it come so to passe that the blood flowes forth so violently, that it can be stayed by no meanes, the vessell it selfe must be bound, after this manner

First thrust thorough the musculous skinne on the outside with a needle and thred, then thrust the needle backe againe; then tye the thred on a knot on the outside, but first put some lint rolled up to the bignesse of a Goose quill betweene the thred and the hairy scalpe on both sides thereof, least the strait twitching of the

The manner to binde a vessel in case of too much bleeding.

thred which may serve to stay the bleeding, may cut and teare the skinne, or cause paine: then must you raise his head somewhat higher.

A History.

I have lately tried, and performed this upon a certaine Coach-man, who throwne from the Coach upon his head on a pavement of freestone, exceedingly bruised the hind part of the *Bregma*, for which cause it was fit to open the Musculous skinne, with a crosse incision, both that the congealed blood might bee pressed out, as also that the fracture (if there were any) might be observed. But an Artery being cut in performance hereof, when as the Chirurgion who was there present could not stay the blood leaping out with violence; and the Coachman already had lost so great a quantity thereof, that his strength was so much decayed, that hee could not stirre himselfe in his bed, or scarce speake: I being called, shewed them by experience, that whereas astringent medicines were used before to no purpose, it was better to stay the bleeding by binding the vessell, than to let the patient die for a childish feare of pricking him.

the patient
not moved
but bound

**A way to
finde a frac-
ture in the
scull, when it
presents not
it selfe to the
view at the
first.**

**A signe that
both the Ta-
bles are bro-
ken.**

**You may use
the Trepan
after the tenth
day.**

But that we may returne to our former matter, the Chirurgion shall the next day consider with what kinde of fracture the bone is hurt; and if no signes of hurt appeare to the eyes, nor be perceived with your fingers and probe, yet some of the rationall signes may cause one to have a conjecture that there is a fracture: Then you must annoint as we told you before, the bared bone with writing Inke, and a little oyle of Roses; that the cleft or cracke may be dyed or coloured therewith, if that there be any there. Then the next dressing you must drie the bone with a linnen cloth, and scrape off the Inke, and oyle, with scraping Instruments made for the purpose: if any part thereof, shall be suncke into the bone; for if there be any cracke, it will bee black; Wherefore you must continue scraping untill no signe of the fissure remaine, or else untill you come even to the *Dura Mater*. But that he may be more certaine whether the fissure pierce thorough both the Tables of the scull, he must bid the Patient, that stopping his nose & mouth, he strive to breathe with a great endeavour. For then bloody matter or *sanies* will sweat thorough the fissure: For the breath driven forth of the chest, and prohibited passage forth, swells and lifts up the substance of the braine, and the *Meninges*, whereupon that frothy humidity and *Sanies* sweats forth. Therefore then the bone must be cut even to the *Dura Mater*, with *Radula* and other scraping Instruments, fit for that purpose, yet so as you hurt not the membrane; but if the fissure shall be somewhat long, it will not bee convenient to follow it all the extent thereof: for nature will repaire and restore the remnant of the fissure by generating a *Callus*; besides also the Chirurgion according to *Celsus* opinion must take away as little of the bone as he can, because there is nothing so fit to cover the braine, as the scull. Therefore it shall suffice to make a passage, whereby the blood and *Sanies* may passe and be drawne forth, least that matter being suppressed may corrupt the bone, and cause an inflammation in the braine. But the broken bone must bee taken forth within three dayes if it be possible, especially in Sommer for feare of inflammation. Yet I have oftentimes taken forth with a Trepan and with Scrapers the bones of the scull, after the seaventeenth day, both in Winter & Sommer; and that with happy successe. Which I have the rather noted, least any should, at any time, suffer the wounded to be left destitute of remedie: for it is better to trie a doubtfull remedie than none: Yet the By-standers shall be admonished and told of the danger, for many more die who have not the broken bones of the scull taken out, than those that have.

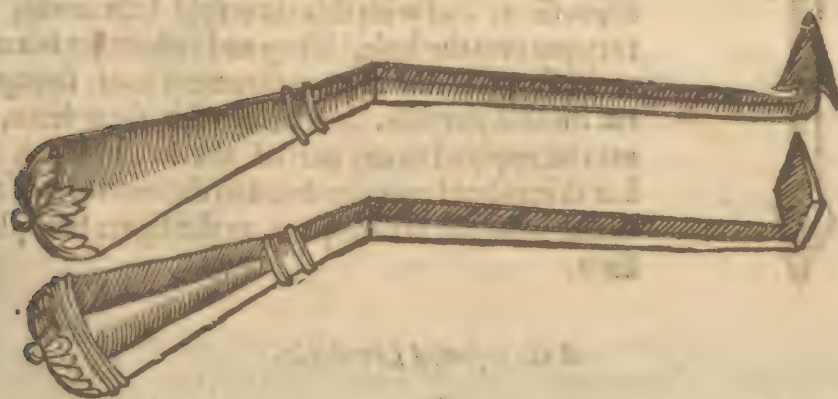
But the Instruments, with which the wounded or cleft bones may be cut out are called *Scalpri* or *Radula*, of which I have caused diverse sorts to be here decyphered, that every one might take his choice, according to his minde, and as shall bee best for his purpose. But all of them may be scrued into one handle, the figure whereof I have here exhibited.

Radula

Radulæ or Scalpri (i) Shavers or Scrapers.



Radulæ of another forme, for the better cutting of the greater bones.



To conclude, when the skull shall be wounded or broken with a simple fissure, the Chirurgion must thinke he hath done sufficient to the patient; and in his *Art*, if hee shall divide the bone and dilate the fissure or cleft with the described Instruments, though he have used no Trepan, although the fissure pierce thorough both the Tables. But if it doth not exceed the first Table, you must stay your scrapers as soone as you come to the second, according to the opinion of *Paulus*: but if the bone shall be broken, and shivered into many peeces, they shall be taken forth with fit Instruments, using also a Trepan if neede shall require, after the same manner as we shall shew you hereafter.

It is sufficient in a simple fissure to dilate it with your Scalpri onely and not to Trepan it.

CHAP. V.

Of a Contusion, which is the second sort of fracture.

IN *Ecchymosis*, that is, an effusion of blood, presently concreting under the musculous skinne, without any wound, is oft caused by a violent Contusion. This Contusion if it shall be great, so that the skinne be devided from the skull, it is expedient, that you make an incision, whereby the blood may bee evacuated and emptied. For in this case you must wholly desist from suppurative medicines, (which otherwise would be of good use in a fleshy part) by reason that all movst things are hurtfull to the bones, as shall be showne hereafter.

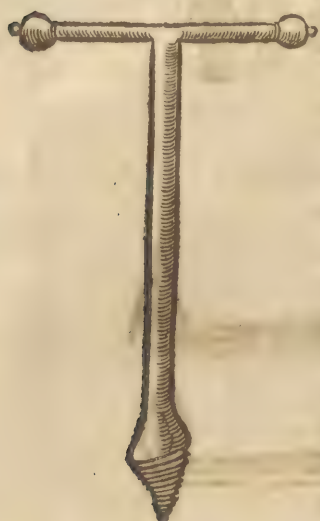
Such like Contusions more frequently happen in children, being easily perceived by the softnesse, and inundation of the contused part: forth of which oft times when I have opened them with my incision knife, serous, clotted and blackish blood hath issued

What an *Ecchymosis* is.

How a contusion of the skull must be cured.

Different
cures of a de-
pressed skull,

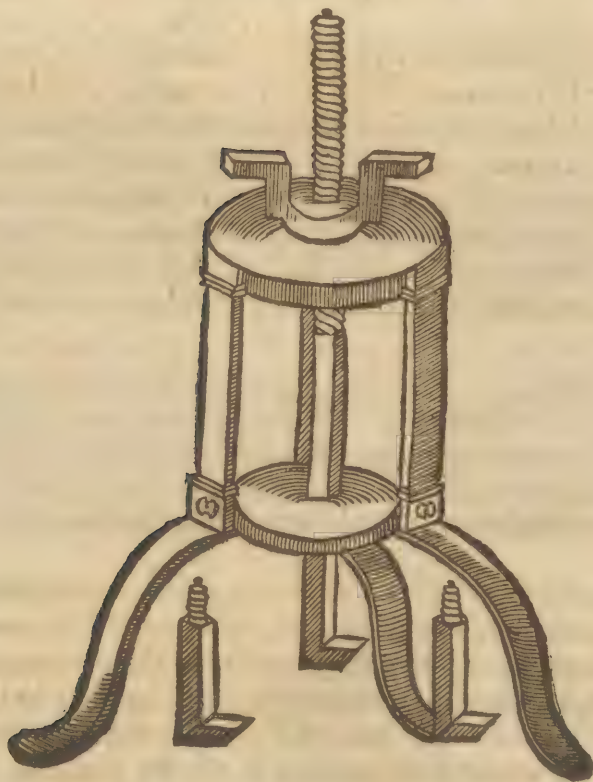
issued. The residue of the cure is perfected by moderate compression of the part, and drying medicines. Moreover the scull of a child, may bee pressed downe, by a great contusion, even as wee see it happens in thin vessels of brasle, lead, or pewter, for oft times by the pressure of your finger, they are so dented in, that the print thereof remaines; yet sometimes they fly backe of themselves, and againe acquire their former plainesse and equabilitie, which also happens, in the bones of children, women, and such as are soft, humide and phlegmaticke. But if the bones doe not spring backe of themselves, you must apply a cupping glasse with a great flame; with-
all commaund the patient, to force his breath up as powerfully as he can, keeping his mouth and nose close shut; for thus there will be hope, to restore the depressed bone to its place, by the spirits forst upwards to the braine and scull, by the powerfull attraction of the cupping glasse. But if so bee that the bone cannot by this meanes be restored, then you must make an incision in the skinne, and fasten such a Trepan,

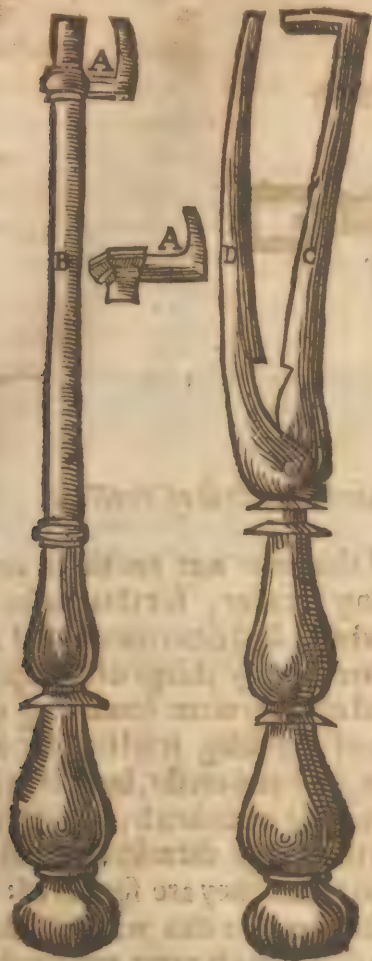


as you see heere deliniated, into the deprest, or settled part of the bone, and so pull it directly upwards, just as wee see Coopers raise the staves of their caske, when they are sunke too much in,

But if the bone shall be too strong, thicke, and dense, so that this Instrument will not serve to plucke it forrh; then you must perforate the scull, in the very center of the depression; and with this threefold Instrument, or Levatory put into the hole, lift up and restore the bone to its naturall site; for this same Instrument is of strength sufficient for that purpose. It is made with three feete, that so it may be applyed to any part of the head which is round; but divers heads may be fitted to the end thereof according as the businesse shall require, as the figure here placed doth shew.

A three footed Levatorie.



A deliniation of other Levatories.

A. Shewes the point or tongue of the Levatory, which must be somewhat dull, that so it may bee the more gently and easily put betwene the Dura Mater and the scull, and this part thereof may be lifted up so much by the head or handle taken in your hand, as the necessity of the present operation shall require.

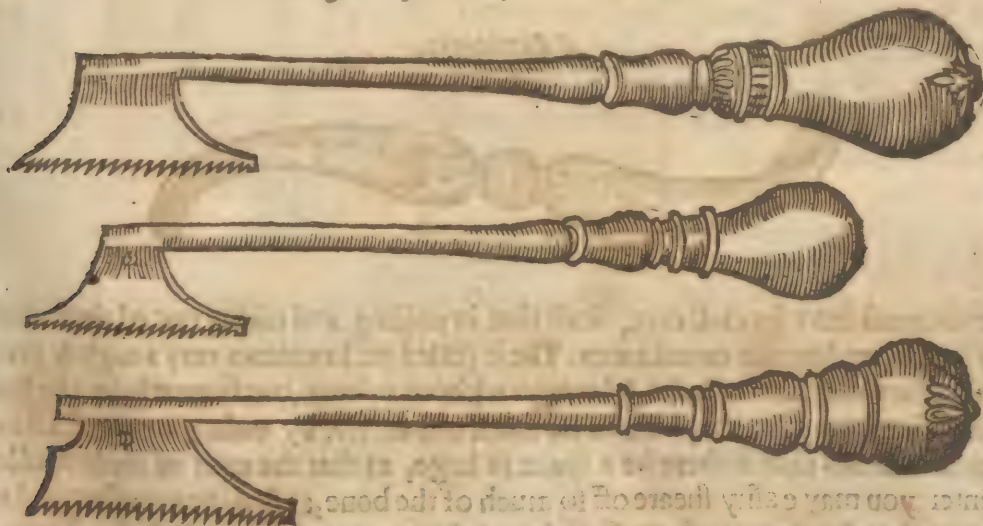
B. Intimates the body of the Levatory, which must bee foure square, lest the point or tongue put thereon should not stand fast, but the end of this Body must rest upon the sound bone, as on a sure foundation.

The use thereof is, thus: put the point or tongue under the broken or depressed bone, then lift the handle up with your hand, that so the depressed bone may bee elevated.

C. Shewes the first Arme of the other Levatory, whose crooked end must bee gently put under the depressed bone.

D. Shewes the other Arme, which must rest on the sound bone, that by the firme standing thereof, it may lift up the depressed bone.

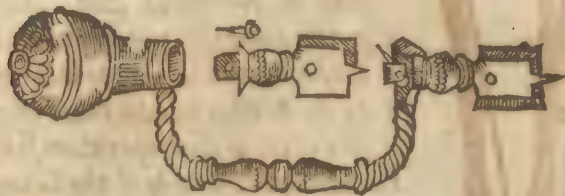
But if at any time it comes to passe, that the bone is not totally broken or deprest, but onely on one side; it will be fit, so to lift it up, as also to make a vent for the issuing out of the filth, to devide the scull with little sawes like these, which ye see here expressed, for thus so much of the bone, as shall be thought needefull, may be cut off without compression, neither will there be any danger of hurting the braine or membrane with the broken bone.

The Figures of Sawes fit to divide the scull.

But if by such signes as are present, and shall appeare, wee perceive or judge that the contusion goes but to the second Table, or scarce so farre, the baring or taking away of the bone, must go no further than the contusion reaches, for that will bee sufficient to eschew and divert Inflammation and divers other symptomes. And this

this shall be done with a scaling or Desquamatory Trepan (as they terme it) with which, you may easily take up as much of the bone, as you shall thinke expedient. And I have here given you the figure thereof.

A Desquamatorie or Scaling Trepan.



CHAP. VI.

Of an Effracture, depression of the bone, being the third kinde of Fracture.



Efore I come to speake of an Effracture, I thinke it not amisse to crave pardon of the courteous and understanding Reader, for this reason especially, that as in the former Chapter, when I had determined and appointed to speake of a Contusion, I inserted many things of a Depression; so also in this chapter of an Effracture, I intend to intermixe something of a Contusion; wee doe not this through any ignorance of the thing it selfe; for wee know that it is called a contusion, when the bone is deprest and crusht, but falles not downe. But an Effracture is when the bone falls downe and is broken by a most violent blow. But it can scarce come so to passe, but that the things themselves must be confounded and mixt, both as they are done; and also when they are spoken of: so that you shall scarce see a Contusion without an Effracture, or this without that. Therefore the bones are often broken off and driven downe with great and forcible blowes, with clubbes whether round or square, or by falling from a high place directly downe, more or lesse according to the force of the blow, kinde of weapon, and condition of the part receiving the same: Wherefore you must bee provided with diversity of remedies and Instruments to encounter therewith. Wherefore admit the bone is pressed downe, and shivered into many peeces, now for that these splinters neede not be taken out with a Trepan: you may do the businesse with Levatories made and neatly fashioned for that purpose; such as these, which are here expressed.

What a contusion is.

What an Effracture is.

The causes of Effractures.

The cure.

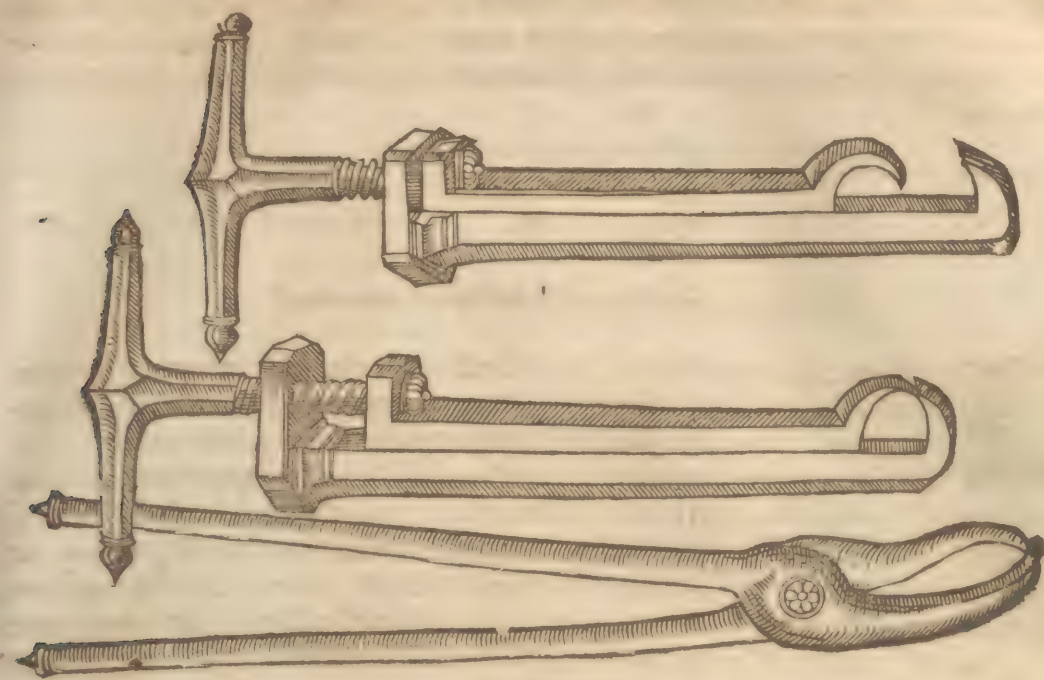
A Levatorie.



But we must have speciall care, least that in pulling and taking out of these scales and splinters, we hurt the membranes. These scales are sometimes very rough & prickly, so that they cannot touch the *Meninges* without offence; but somewhiles the businesse is so intricate, that they cannot be taken out unlesse by enlarging the fracture. Wherefore in this case, if there be a space so large, as that the ends of these mullets may enter, you may easily sheare off so much of the bone, as shall be necessary and requisite for the taking away of these scales, without any assistance of the Trepan, which I have done very often and with good successe; for the operation performed by these mullets is far more speedy and safe, than that with the Trepan; and in the performance of every operation, the chiefe commendation is given to safenesse and celeritie.

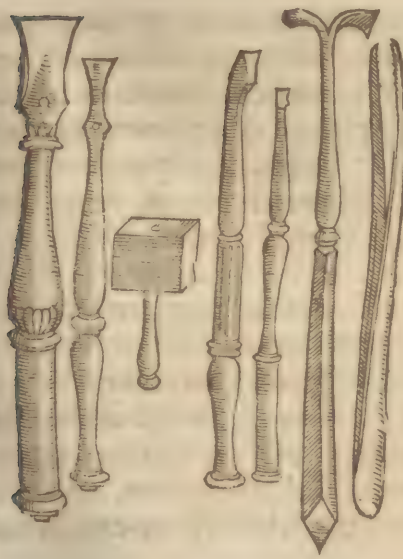
Cutting

Cutting Mullets, commonly called, Rostra Psittaci, or Parrots-beakes.



Moreover I have thought good here to give you the figures of chissells, scrapers, and Pincers, together with a leaden mallet, because such Instruments are not onely very necessary to take forth the scales of bones which are broken, but also to plaine, and smooth those which remaine whole.

The Figures of Scrapers, Pincers, a Leaden Mallet, &c.



But here you must note, that a Trepan nor Levatorie must never bee applyed to a bone quite broken, lest the membranes lying under it bee hurt by the compression thereof. Therefore you must apply them to a sound bone, but as neare as you can to the fracture, so that you take away as little of the scull as is possible, lest the braine despoiled of its bonie cover, take some harme thereby. Neither Effractions, nor yet fissures if they bee of some length, must be followed to their ends, but thinke your selfe well, if you have made a passage for the issuing forth of the Sanies or filth, and have drawne forth that bone, which pricked the membranes. For nature is accustomed by generating a *Callus* to soulder, or unite the bones of the scull, as it also doth these of the other parts, as wee have

read it written by *Hippocrates* and *Galen*; for which purpose it hath by singular providence replenished both the Tables of the scull, with a certaine alimentarie and bloody matter, that with this, as with marrow it might repaire the losse and defect of the bone.

The truth hereof was lately manifested in the servant of Master *Grolo*, who had an Effraction on the coronall bone, by a greevous blow, given him with the foote of a Mule; which when I understood, I devided the musculous skinne with a three cornered section in that place, with an intent to apply a Trepan there; wherefore the day following, the bone being bored, and when I thought to draw it forth, yea verily endeavoured to plucke it forth, being already divided with the Trepan; I perceived a fearefull production of an Effraction; by the moveablenesse of the bone shaking under my hand; for it reached from the midst of the forehead, to the lesser corner of the eye.

*Hip. lib. de
Vuln. cap.
Gal. lib. 6.
meth. cap. ult.*

A History.

eye. Wherefore omitting both my determination and endeavour to pull it forth, I thought I should doe sufficiently for the patient : if I should only raise up the bone which was deprest; for so it did not trouble the *Crassameninx* by pressing it, and the matter, and filth, were let forth by a passage made with a saw. So that in conclusion, he recovered perfectly, but that he lost one of his eyes which was adjoyning to the fracture.

CHAP. VII.

Of a Seate, being the fourth kinde of a broken Scull.

What a seate
is.



Hippocrates calls a seate that kinde of Fracture of the scull, when the weapon to falls upon the scull, that the fracture reteining the print thereof, is neither stretched forth any further, nor contracted to any lesse space.

The cure.

And seeing there be many formes hereof, they all whether they shall bee superficially, or shall pierce even to the *Diploe*, or else passe through both the Tables, whether it be with any losse of the bonic substance, whether it runne long wayes, or else be but short, or otherwise are dilated to some breadth, or else bee but narrow; whether they shall be done with a cut, or with a pricke with a dagger, stelletto, lance or other kind of weapon, whether they shall have this or that accident joyned with them, I say all of them, how many and various soever they be, ought and must be cured by some of the formerly described Instruments and meanes. Yet this must be noted, which as yet wee have not remembred, that if it happen by a violent stroake, and great wound, that a portion of the bone is wholly so cut off, that it is cleane severed from the rest of the scull, and hang only by the *Pericranium* and musculous skinne; yet you must not plucke it from the *Pericranium*, and cast it away as unprofitable, but restore it to its proper seate and place, so by the force of nature, to be glewed by a *Callus*, as *Celsus* hath observed.

Lib. 8. cap. 4.

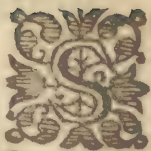
A History,

I have tryed the truth of this experiment, in captaine *Hydron* not very long agoe. He had the middle part of the *Os Coronale*, of the bredth, and length of three fingers, so cut with a sharpe sword, that it stucke not to the rest of the bone; but scarce adhearing to the *Pericranium* and musculous skinne; but lay turned downe over his face, so that the *Dura Mater* was plainely seene; wherefore I prepared to plucke it from the skinne, and cast it away, but that I remembred *Hippocrates* precept, where hee bids, that the Braine should not be robbed of its cover and left bare. Wherefore first of all I wiped away the blood which was fallen upon the *Dura Mater*, whose motion you might plainely see, then I restored the portion of the bone, to its place, and fastned it on the upper side with a suture consisting of three stiches; and that the residue of the matter might have passage forth, I filled the places betweene each stitch with linte; by this meanes, he by the mercy of God, recovered, though at the same time he received many other large wounds in his bodie; which is a certaine experiment, that we must cast away no part of the scull, nor of the *Pericranium*, no not of the musculous skinne, unlesse necessity urge; therefore much lesse to leave the braine naked and despoiled of its coverings.

CHAP. VIII.

Of a Resonitus, or Counter-fissure, being the fifth kinde of Fracture.

What a Resonitus
is.



Sometimes the fracture is made in the part opposite to that which received the blow; as if the right side be stricke, the left is cloven; this kinde of fracture is very dangerous, because wee cannot finde it out by any certaine signe, as it is written by *Hippocrates Lib. de vuln. Capitis*. Wherefore if at any time the patient dye of such a fracture, the Chirurgion must be pardoned.

And

And although *Paulus Aegineta* laugh at this kinde of fracture and thinkes that it cannot happen to a mans head, as that which is hard and full, as it happens in empty glasse bottles, yet I have sometimes seene and observed it.

Lib. 6. cap. 90.

Neither is their reason of any validity, who thinke nature therefore to have framed the head of many bones knit together by sutures, lest the fracture of the one side, should be stretched to the other. For peradventure this may take place, in such as have expresse sutures, seated and framed according to nature. But it takes no place in such as either want them, or have them not seated according to nature, or have them very close and so defaced that it may seeme one bone growne together of many; This shall be made manifest by recitall of the following Historie.

In whom this fracture may take place in diverse bones of the scull.

A servant of *Massius* the Poste-master had a greevous blow with a stone, upon the right *Bregma*, which made but a small wound, yet a great contusion and Tumor: Wherefore that it might more plainly appeare, whether the bone had received any harme, and also that the congealed blood might be pressed forth, the wound was dilated, the skinne being opened by *Theodore Herens* the Chirurgion, who as hee was a skillfull workeman and an honest man, omitted nothing which Art might doe for his cure. When he had divided the skinne, the bone was found whole, although it was much to bee feared, that it was broken, because he fell presently to the ground with the blow, vomited and shewed other signes of a fractured scull; so it happened that he dyed on the one & twentieth day of his sicknes. But I being called to learne, & search how he came by his death, deviding the scull with a saw, found in the part opposite to the blow, a great quantity of *Sanies* or bloody matter, and an Abscesse in the *Crasa meninx*, and also in the substance of the very braine, but no sutures, but the two scaly ones. Therefore that is certaine which is now confirmed by the authority of *Hippocrates*; as also by reason and experience, that a blow may bee received on the one side, and the bone may be fractured on the opposite, especially in such as have either no sutures, or else so firmly united and closed, that they are scarce apparent.

A History.

Neither is it absurde, that the part, opposite to that which received the stroake, of the same bone and not of diverse bones may be cloven, and in those men who have their sculls well made, and naturally distinguished and composed with sutures; and this both was and is, the true meaning of *Hippocrates*. That this may bee the better understood, we must note that the opposite part of the same bone may be understood two manner of wayes. First, when the fracture is in the same surface of the smitten bone, as if that part of one of the bones of the *Bregma* which is next to the Lambdall future be smitten, and the other part next to the Coronall future be cloven. Secondly, when as not the same superficies and table which receives the blow, but that which lyes under it is cleft, which kind of fracture I observed, in a certaine Gentleman a Horseman of Captaine *Stempans* troope; He in defending the breach of the wall of the Castle of *Hisdin* was stricke with a Musket bullet upon the *Bregma*, but had his helmet on his head; the bullet dented in the Helmet but did not breake it, no nor the muscular skinne, nor scull, for as much as could be discerned, yet notwithstanding hee died apoplecticke upon the sixth day after.

The Resonitua may be in the same bone of the scull.

A History.

But I being very desirous to know, what might be the true cause of his death, dividing his scull, observed that the second table was broken, and cast off scales and splinters, wherewith as with needles the substance of the braine was continually pricked, the first and upper table being whole, for all this: I afterwards shewed the like example to *Capellanus* and *Castellanus* the King and *Queenes* chiefe Physicians in the expedition of *Roane*.

But *Hippocrates* prescribes no method of curing this fifth kind of fracture, by reason he thinks it cannot be found out by any circumstance, whence it happens that it is for the most part deadly. Yet must we endeavour to have some knowledg & conjecture of such a fracture, if it shall at any time happen. Wherefore having first diligently shaved away the haire, we must apply an Emplaster of Pitch, Tarre, Waxe, Turpentine, the powder of *Iris*, or floure deluce rootes, and mastich; now if any place of the head shall appeare more moyst, soft and swollne, it is somewhat likely that the bone is cleft in that place, so that the patient, though thinking of no such thing, is now & then

Why Hippocrates set downe no way to cure a Resonitus.

The manner to know when the scull is fractured by a Resonitus.

forset to put his hand to that part of the scull. Confirmed with these and other signes formerly mentioned, let him call a counsell of learned Physitions; and foretell the danger to the Patients friends which are there present, that there may no occasion of calummie remaine, then let him boldly perforate the scull; for that is far better, than forsake the patient ready to yeelde to the greatnesse of the hidden disease, and so consequently to dye within a short while after. There are foure sorts, or conditions of fractures, by which the Chirurgion may be so deceived, that when the scull is broken indeed, yet he may thinke there is no fracture. The first is when the bone is so depressed, that it presently rises up into its true place, and native equability. The second is when the fissure is onely capillary. The third is when the bone is shaken on the inside, the utter surface neverthelesse remaining whole, forasmuch as can be discerned. The fourth is, when the bone is stricken on the one side and cleft on the other.

CHAP. IX.

Of the moving, or Concussion, of the Braine.

*Gal. lib. 2. de
comp. medic.
cap. 6. & Com.
ad Aph. 8. §
sect. 7.*



Besides the mentioned kindes of fractures by which the braine also suffers; there is another kinde of affect besides nature, which also assailes it by the violent incursion of a cause, in like manner, externall; they call it the Commotion or shaking of the braine, whence Symptoms like those of a broken scull ensue. Falling from aloft upon a solide and hard body, dull and heave blowes, as with stones, clubbes, staves, the report of a peece of Ordinance, or cracke of Thunder, and also a blow with ones hand.

Lib. 5. Epidem.

Thus as *Hippocrates* tells, that beautifull damosell the daughter of *Nerius*, when she was twenty yeeres old, was smitten by a woman, a friend of hers, playing with her, with her flat hand upon the fore part of the head, and then she was taken with a giddines, and lay without breathing, & when she came home, she fell presently into a great Feaver, her head aked, and her face grew red. The seaventh day after there came forth some two or three Ounces of stincking and bloody matter about her right eare, and shee seemed somewhat better and to be at somewhat more ease. The feaver encreased againe, and she fell into a heaveie sleepinesse, and lost her speech, and the right side of her face, was drawne up, and she breathed with difficulty, she had also a convulsion and trembling; both her tongue failed her, and her eyes grew dull, on the ninth day she dyed. But you must note, that though the head be armed with a helmet, yet by the violence of a blow, the Veines, and Arteries may be broken, not onely these which passe through the futures, but also these which are disperfed betweene the two tables in the Diploe, both that they might binde the *Crasa Meninx* to the scull, that so the braine might move more freely, as also that they might carry the alimentary juice to the braine wanting marrow, that is, blood to nourish it, as we have formerly shewed in our Anatomie.

The vessels of
the braine
broken by the
commotion
thereof.

signes.

Celsus.

The cause of
vomiting
when the head
is wounded.

But from hence proceeds the efflux of blood running betweene the scull, and membraines, or else betweene the membraines and braine; the blood congealing there, causeth vehement paine, and the eyes become blinde, vomitting is caused, the mouth of the stomacke suffering together with the braine; by reason of the Nerves of the sixt conjugation, which runne from the braine thither, and from thence are spread over all the capacitie of the ventricle; whence becomming a partaker of the offence it contracts it selfe, and is presently as it were overturned; whence first, these things that are contained therein are expelled, and then such as may flow, or come thither from the neighbouring and commune parts, as the Liver and Gall; from all which choler, by reason of its naturall levity and velocity, is first expelled and that in greatest plenty; and this is the true reason of that vomiting, which is caused and usually followes upon fractures of the scull and concussions of the Braine.

Within a short while after inflammation seizes upon the membranes and braine it selfe, which is caused by corrupt and putrid blood proceeding from the vessels broken

ken by by the violence of the blow, and so spread over the substance of the braine. Such inflammation communicated to the heart, and whole body by the continuation of the parts, causes a feaver. But a feaver, by altering the braine causes Doting; to which if stupidity succeed; the Patient is in very ill case, according to that of *Hippocrates*; Stupidity, and doting, are ill in a wound, or blow upon the head. But if to these evils, a sphacell, and corruption of the braine ensue, together with a great difficulty of breathing, by reason of the disturbance of the Animall facultie, which from the braine imparts the power of moving to the muscles of the Chest, the instruments of respiration, then death must necessarily follow.

Aphor. 14, sect. 7

A great part of these accidents appeared in King *Henry* of happy memory, a little before he dyed. He having set in order the affaires of France, and entered into amitie with the neighbouring Princes, desirous to honour the marriages of his daughter, and sister, with the famous and noble exercise of Tiltting, and hee himselfe running in the Tilt-yard, with a blunt lance received so great a stroake upon his brest, that with the violence of the blow, the visour of his helmet flew up, and the trunchion of the broken Lance, hit him above the left eye-brow, and the musculous skinne of the fore-head was torne even to the lesser corner of the left eye, many splinters of the same trunchion being stricke into the substance of the fore mentioned eye, the bones being not touched or broken; but the braine was so moved and shaken, that he dyed the eleventh day after the hurt. His scull being opened after his death, there was a great deale of blood found betweene the *Dura*, and *Pia Mater*, poured forth in the part opposite to the blow, at the middle of the future of the hinde part of the head; and there appeared signes by the native colour turned yellow, that the substance of the braine was corrupted, as much as one might cover with ones thumb. Which things caused the death, of the most Christian King, and not onely the wounding of the eye, as many have falsly thought. For wee have seene many others, who have not dyed of farre more greevous wounds in the eye:

A History,

What was the necessary cause of the death of King Henry the second of France,

A History,

The history of the Lord Saint *Iohn* is of late memory: he in the Tilt-yarde, made for that time before the Duke of *Guises* house, was wounded with a splinter of a broken Lance, of a fingers length and thickenesse, through the visour of his Helmet, it entering into the Orbe under the eye, and peircing some three fingers bredth deepe into the head; by my helpe and Gods favour hee recovered, *Valeranus* and *Duretus* the Kings Physitions and *James* the Kings Chirurgeon assisting me.

A History,

What shall I say of that great and very memorable wound of *Francis* of *Lorraine* the Duke of *Guise*? He in the sight of the City of *Bologne* had his head so thrust thorough with a Lance, that the point entering under his right eye by his nose, came out at his necke betweene his eare and the *vertebra*, the head or Iron being broken and left in by the violence of the stroke, which stuck there so firmly, that it could not be drawn or plucked forth, without a paire of Smiths pincers. But although the strength & violence of the blow was so great, that it could not be without a fracture of the bones, a tearing and breaking of the Nerves, Veines, Arteries and other parts; yet the generous Prince by the favour of God recovered.

By which you may learne, that many die of small wounds; and other recover of great, yea very large and desperate ones. The cause of which events is chiefly and primarily to be attributed to God, the author and preserver of mankind; but secondarily to the variety and condition of temperaments. And thus much of the commotion or concussion of the braine; whereby it happens that although all the bone remains perfectly whole, yet some veines broken within by the stroke, may cast forth some blood upon the membranes of the braine, which being there concreate may cause great paine, by reason whereof it blindes the eyes; if so be that the place can be found against which the paine is, and when the skinne is opened, the bone looke pale, it must presently be cut out, as *Celsus* hath written. Now it remains, that we tell you how to make your prognostickes, in all the forementioned fractures of the scull.

Why some die of small wounds and others recover of great,

CHAP. X.

Of Prognostickes to be made, in fractures of the scull.

Hippoc. de vul.
cap.

EE must not neglect any wounds in the head, no not these which cut or bruise but onely the hairy scalpe; but certainly much lesse, these which are accompanied by a fracture in the scull; for oft times all horride symptomes follow upon them, and consequently death it selfe, especially in bodies full of ill humors, or of an ill habite, such as are these which are affected with the *Lues venerea*, leprosie, dropsie, Pthificke and consumption; for in these, simple wounds are hardly or never cured; for union is the cure of wounds, but this is not performed, unlesse by strength of nature, and sufficient store of laudible blood: but those which are sicke of heeticke feavers and consumptions, want store of blood: and those bodies which are replete with ill humors, and of an ill habite have no afflux or plenty of laudible blood: but all of them want the strength of nature; the reason is almost the same in those also which are lately recovered of some disease.

Whether the
wounds of
children, or old
people are bet-
ter to heale.

Those wounds which are brused are more difficult to cure, than those which are cut. When the scull is broken, than the continuity of the flesh lying over it must necessarily be hurt & broken, unlesse it be in a *Resenitus*. The bones of children are more soft, thin and replenished with a sanguine humidity, than those of old men, and therefore more subject to putrefaction; Wherefore the wounds which happen to the bones of children, though of themselves, and their owne nature they may be more easily healed, (because they are more soft, whereby it comes to passe, that they may bee more easily agglutinated, neither is there fit matter wanting for their agglutination by reason of the plenty of blood laudible both in consistence and quality) than in old men, whose bones are dryer and harder, and so resist union, which comes by mixture, and their blood is serous, and consequently a more unfit bond of unitie and agglutination; yet oft times through occasion of the symptomes which follow upon them, that is putrefaction and corruption, which sooner arise in a hot and moyst body, and are more speedily encreased in a soft and tender, they usually are more suspected and difficult to heale.

The Patient lives longer of a deadly fracture in the scull, in Winter than in Summer, for that the native heat is more vigorous in that time than in this; besides, also the humors putrifie sooner in Summer, because unnaturall heat is then easily enflamed and more predominant, as many have observed out of *Hippocrates*.

Aph. 15, sect. 1.

The Wounds of the braine and of the *Meninges* or membranes thereof are most commonly deadly, because the action of the muscies of the chest, and others serving for respiration, is divers times disturbed & intercepted, whence death insues. If a swelling happening upon a wound of the head presently vanish away, it is an ill signe, unlesse there be some good reason therefore, as blood-letting, purging, or the use of resolving locall medicines, as may be gathered by *Hippocrates* in his Aphorismes. If a feaver ensue presently after the beginning of a wound of the head, that is, upon the fourth or seaventh day, which usually happens, you must judge it to bee occasioned by the generating of Pus or Matter, as it is recited by *Hippocrates*. Neither is such a feaver so much to be feared, as that which happens after the seaventh day, in which time it ought to be determinated; but if it happen upon the tenth or foureteenth day with cold or shaking, it is dangerous, because it makes us conjecture that there is putrefaction in the braine, the *Meninges*, or scull, through which occasion it may arise, chiefly if other signes shall also concur, which may shew any putrefaction, as if the wound shall be pallide and of a faint yellowish colour, as flesh looks after it is washed.

Aphor. 65, sect. 5

Aph. 47, sect. 2.

Wounds which
are dry, rough,
livide and black
are evill,

For, as it is in *Hippocrates Aphorif. 2. sect. 70* It is an ill signe if the flesh looke livide, when the bone is affected; for that colour portends the extinction of the heare, through which occasion, the lively, or indifferently red colour of the part, faints and dyes, and the flesh thereabouts is dissolved into a viscid Pus or filth.

Com-

Commonly another worse affect followes hereon, wherein the wound becomming withered and dry, lookes like salted flesh, sends forth no matter, is livide and blacke, whence you may conjecture, that the bone is corrupted, especially if it become rough, whereas it was formerly smooth and plaine; for it is made rough when *Caries* or corruption invades it; but as the *Caries* encreases, it becomes livide and blacke, sanious matter withall sweating out of the *Diploe*, as I have observed in many: all which are signes that the native heat is decayed, and therefore death at hand; but if such a feaver be occasioned from an *Erysipelas* which is either present or at hand, it is usually lesse terrible. But you shall know by these signes, that the feaver is caused by an *Erysipelas* & conflux of cholericke matter; if it keepe the forme of a Tertian, if the fit take them with coldnes and end in a sweat; if it be not terminated before the cholerike matter is either converted into Pus or else resolved; if the lips of the wound be somewhat swollne, as also all the face; if the eyes be red and fiery; if the necke and chappes bee so stiffe, that he can scarce bend the one, or open the other; if there be great excelsse of biting and pricking paine, and heate, and that farre greater than in a *Phlegmon*. For such an *Erysipelous* disposition generated of thinne and hot blood, chiefly assailes the face, and that for two causes.

The signes of a feaver caused by an *Erysipelas*.

The first is, by reason of the naturall levity of the cholericke humor; the other because of the rarity of the skinne of these parts.

Why an *Erysipelas* chiefly assailes the face.

The cure of an *Erysipelas* on the face.

The cure of such an affect must be performed by two meanes, that is, evacuation, and cooling with humectation. If choler alone cause this tumor, we must easily be induced to let blood, but we must purge him with medicines evacuating choler. If it be an *Erysipelas phlegmonodes*, you must draw blood from the Cephalicke veine of that side, which is most affected, alwayes using advise of a phisition. Having used these generall meanes, you must apply refrigerating and humecting things, such as are the juice of Night-shade, Houfleeke, Purslaine, Lettuce, Navell wort, Water Lentill, or Ducks-meate, Gourdes; a liniment made of two handfulls of Sorrel boiled in faire water, then beaten and drawne through a searse, with ointment of Roses, or some *unguent*. *Populeon* added thereto, will bee very commodious. Such and the like remedies must be often and so long renewed untill the unnaturall heat be extinguished. But we must be carefull to abstaine from all unctuous and oily thing, because they may easily be enflamed, and so increase the disease. Next we must come to resolving medicines, but it is good when anything comes from within, to without; but on the contrary it is ill, when it returns from without inwards, as experience and the Authority of *Hippocrates* testifie: If when the bone shall become purulent, pustles shall breake out on the tongue, by the dropping downe of the acride filth or matter by the holes of the pallate upon the tongue, which lyes under. Now when this symptome appeares, few escape. Also it is deadly when one becomes dumbe and stupid, that is, Apolecticke by a stroake or wound on the head; for it is a signe that not onely the bone, but also the braine it selfe is hurt. But oft times the hurt of the Braine proceeds so farre, that from corruption it turnes to a Sphacell, in which case, they all have not onely pustles on their tongues, but some of them dye stupide and mute, other some with a convulsion of the opposite part; neither as yet have I observed any which have dyed with either of these symptomes, by reason of a wound in the head, who have not had the substance of their braine tainted with a Sphacell, as it hath appeared when their skulls have beene opened after their death.

Why oily things must not be used in an *Erysipelas* of the face.

Aph. 25, sect. 6

Deadly signes in wounds of the head.

CHAP. XI.

Why, when the braine is hurt by a wound of the head, there may follow a Convulsion of the opposite part.



Any have to this day enquired, but as yet as farre as I know it hath not bin sufficiently explained, why a convulsion in wounds of the head seizes on the part opposite to the blow. Therefore I have thought good to end that controversie in this place. My reason is this, that kinde of Symptome happens in the sound part by reason of emptinesse and

A convulsion is caused by drynesse.

A twofold
cause of con-
vulsive
dryness,

dryness; but there is a twofold cause, and that wholly in the wounded part, of this emptiness and dryness of the sound or opposite part; to wit, paine, and the concurrence of the spirits and humors thither by the occasion of the wound, and by reason of the paines drawing and natures violently sending helpe to the afflicted part.

The sound part exhausted by this meanes both of the spirits and humors, easily falls into a Convulsion.

Lib. 4. de usu
partium,

For thus *Galen* writes; God the creatour of nature, hath so knit together, the triple spirituous substance of our bodies, with that tie, and league of concord, by the productions of the passages; to wit of Nerves, Veines, and Arteries, that if one of these forsake any part, the rest presently neglect it, whereby it languisheth, and by little, and little dyes, through defect of nourishment. But if any object that nature hath made the body double, for this purpose, that when one part is hurt, the other remaining safe and sound, might suffice for life and necessity: but I say, this axiome hath no truth in the vessels and passages of the body. For it hath not every where doubled the vessels, for there is but one onely veine, appointed for the nourishment of the braine, and the membranes thereof, which is that they call the *Torcular*, by which when the left part is wounded, it may exhaust the nourishment of the right and sound part, and though that occasion cause it to have a convulsion, by too much dryness; Verily it is true, that when in the opposite parts, the muscles of one kinde are equall in magnitude, strength, and number, the resolution of one part, makes the convulsion of the other by accident; but it is not so in the braine.

For the two parts of the braine, the right and left, each by its selfe performs that which belongs thereto, without the consent, conspiracy, or commerce of the opposite part; for otherwise it should follow, that the Palsie properly so called, that is of halfe the body, which happens by resolution, caused either by mollification or obstruction residing in either part of the braine, should inferre together with it a Convulsion of the opposite part. Which notwithstanding dayly experience convinces as false. Wherefore wee must certainly thinke, that in wounds of the head wherein the braine is hurt, that inanition and want of nourishment are the causes, that the sound and opposite part suffers a convulsion.

Opinion of
Galen.

Francis Dalechamps in his French Chirurgery renders another reason of this question; That, (saith he) the truth of this proposition may stand firme and ratified, we must suppose, that the convulsion of the opposite part mentioned by *Hippocrates*, doth then onely happen, when by reason of the greatnesse of the inflammation in the hurt part of the braine, which hath already inferred corruption; and a Gangrene to the braine and membranes thereof, and within a short time is ready to cause a sphacell in the scull, so that the disease must be terminated by death; for in this defined state of the disease, and these conditions, the sense and motion must necessarily perish in the affected part, as we see it happens in other Gangrenes, through the extinction of the native heate. Besides, the passages of the animall spirit must necessarily bee so obstructed by the greatnesse of such an inflammation or phlegmon, that it cannot flow from thence to the parts of the same side lying there under, and to the neighbouring parts of the braine; and if it should flow thither, it will be unprofitable to carry the strength and facultie of sense and motion, as that which is infected and changed by admixture of putred and Gangrenous vapours. Whereby it cometh to passe, that the wounded part destitute of sense, is not stirred up to expell that which would be troublesome to it, if it had sense; wherefore neither are the Nerves thence arising seased upon, or contracted by a Convulsion.

It furthermore comes to passe, that because these same nerves are deprived of the presence and comfort of the animall spirit, and in like manner the parts of the same side, drawing from thence their sense and motion are possessed with a palsie; for a palsie is caused either by the cutting or obstruction of a Nerve, or the madefaction, or mollification thereof by a thinne and watry humor, or so affected by some vehement distemper, that it cannot receive the Animall spirit.

But for the opposite part and the convulsion thereof, it is knowne and granted by all, that a convulsion is caused either by repletion which shortens the Nerves by distending them into breadth, or by inanition, when as the native and primitive

heate

heate of the Nerves being wasted, their proper substance becoming dry is wrinckled up and contracted; or else it proceeds from the vellication, and acrimonie of some vapour, or sanious and biting humor, or from vehemencie of paine. So wee have knowne the falling sicknesse caused by a venenate exhalation carried from the foote to the braine. Also wee know that a convulsion, is caused in the puncture of the Nerves, when as any acride and sanious humor is shut up therein, the orifice thereof being closed; but in wounds of the Nerves when any Nerve is halfe cut, there happens a convulsion by the bitternesse of the paine.

But verily in the opposite part, there are manifestly two of these causes of a convulsion; that is to say, a putride and carionlike vapour, exhaling from the hurt, and Gangrenate part of the braine; and also a virulent acride and biting *Sanies*, or filth, sweating into the opposite sound part, from the affected and Gangrenous; the malignitie of which *Sanies*, *Hippocrates* desirous to decipher, in reckoning up the deadly signes of a wounded head, hath expressed it by the word *Ichor*; and in his booke of fractures he hath called this humor *Dacryodes et non Pyon*. [*that is, weeping and not digested.*] Therefore it is no mervaille if the opposite and sound part endewed with exquisite and perfect sense, and offended by the flowing thereto of both the vaporours and sanious matter, using its own force, contend and labour as much as it can, for the expulsion of that which is trouble somethereto. This labouring or concussion is followed (as we see in the falling sicknesse) by a convulsion, as that which is undertaken in vaine, death being now at hand; and nature over-ruled by the disease. Thus (saith *Dalechampius*) must we in my judgement determine of that proposition of *Hippocrates* and *Avicen*.

But he addes further, in wounds of the head, which are not deadly, practitioners observe that sometimes the hurt part is taken with the palsie, and the sound with a convulsion; otherwhiles on the contrary, the wounded part is seazed by a Convulsion and the sound by a Palsie; otherwhiles both of them by a convulsion or Palsie; and somewhiles the one of them by a convulsion or Palsie, the other being free from both affects; the causes of all which belong not to this place to explaine. Thus much *Dalechampius*.

CHAP. XII.

A Conclusion of the deadly signes in the Wounds of the head:

NOW that we may returne to our former discourse, you may certainly foretell the patient will dye; when his reason and judgement being perverted, hee shall talke idly, when his memory failes him; when he cannot governe his tongue, when his sight growes darke and dimme, his eares deafe, when he would cast himselfe headlong from his bed, or else lyes therein without any motion; when he hath a continuall feaver with a *delirium*, when the tongue breakes out in pustles, when it is chopt, and become blacke, by reason of too much drynesse; when the wound growes dry, and casts forth little or no matter, when as the colour of the wound which was formerly fresh, is now become like salted flesh yellow and pale; when the Urine, and other excrements are supprest; when the Palsie, convulsion, apoplexie, and lastly often sowning, with a small and unequall pulse, invade him. All such signes sometimes appeare presently after the wound, otherwhiles some few dayes after; therefore when as the braine is hurt and wounded by the violence of the incision, or fissure, of the contusion, compression, puncture, concussion or any other fracture, the forementioned signes appeare presently in the first dayes; but when they doe not appeare till many dayes after the blow, you may know that they rise and appeare, by reason of an inflammation and phlegmon in the braine, occasioned by the putrefaction of the blood poured forth upon it.

The signes of a deadly wound from the depraved faculties of the minde,

From habite of the body,

From the signs that such signes appeare,

But we must observe this by the way, which also belongs to the prognostickes, that flesh is easily regenerated, and restored in all parts of the head, except in that part of the forehead, which is a little above that which lyes betweene the eye-browes, so that

Celsus lib. 8. c. 9.

that it will be ulcerated ever after, and must be covered with a plaster. I beleeve that, in that place there is an internall cavity in the bone, full of ayre which goes to the five-like bones of the nose, by which the growth of flesh may be hindered; or else that the bone is very dense or compact in that place, so that there can scarce sufficient juice sweat forth, which may suffice for the regeneration of flesh; adde hereunto a great conflux of excrements flowing to this ulcer, which should otherwise bee evacuated by the eyes and nose, which hinder by that meanes the drynesse of the ulcer, and consequently the healing thereof.

Hence certainly it comes to passe, that if you desire the patient thus affected to breathe, shutting his mouth and nose, the ayre or breath will come forth of the ulcer with such force, as it will easily blow forth a lighted candle of an indifferent bignesse held thereto. Which thing I protest, I observed in a certaine man, whom I was forced to trepan in that place, by reason the bone of the forehead was broken and depressed.

CHAP. XIII.

Of salutarie signes in wounds of the head.

BVt on the contrary these are salutory signes, when the patient hath no feaver, is in his right minde, is well at the application or taking of any thing, sleepest well, hath his belly soluble, the wound lookes with a fresh and lively colour, casts forth digested and laudible matter, the *Cassa Meninx* hath its motion free and no way hindered.

When the patient
is out
of danger,

Yet we must note, which also is observed by the Ancients and confirmed by experience, that we must thinke none past danger, and free from all chance, untill the hundreth day be past. Wherefore the Phytitian ought so long to have a care of his patient, that is, to consider how he behaves and governes himselfe in meate, drinke, sleepe, venerie and other things.

The patient
must beware
of cold,

But let the Patient diligently avoyd and shunne cold, for many when they have beene cured of wounds of the head, by carelesse taking cold have beene brought into danger of their lives. Also you must know that the *Callus* whereby the bones of the scull are knit together, requires almost the space of fortie or fifty dayes to its perfect coagmentation and concretion. Though in very deed one cannot set downe a certaine number of dayes, by reason of the variety of bodies, or tempers. For it is sooner finished in young men, and more slowly in old; And thus much may serve for prognostickes. Now will we treat as breecely and perspicuously as we can of the cure both in generall and particular; wherefore beginning with the generall we will first prescribe a convenient diet by the moderate use of the fixe things not naturall.

CHAP. XIII.

Of the generall cure of a broken skull, and of the Symptomes usually happening thereupon.

How the ayre
ought to be.



The first cure must bee, to keepe the patient in a temperate aire; and if so bee, that it bee not such of it selfe and its owne proper nature, it must be corrected by Art. As in winter he must have a cleare fire made in his chamber, lest the smoake cause sneezing and other accidents; and the windowes and doores must be kept shut to hinder the approach of the cold ayre and winde. All the time the wound is kept open to bee drest, some body standing by shall hold a chafendish full of coales or a heated Iron barre over the wound, at such a distance, that a moderate heate may passe thence to the wound; and the frigidty of the encompassing ayre may be corrected by the breathing of the diffused heate. For cold according to the opinion of *Hippocrates*, is an enemy to the Braine, Bones, Nerves, and spinall marrow; it is also hurtfull to ulcers, by suppressing their excrements, which suppress doe

aphor. 18. sec. 2.

doe not onely hinder suppuration, but also by corrosion makes them sinuous. Therefore *Galen* rightly admonisheth us, to keep cold from the braine, not only in the time of Trepaning, but also afterwards. For there can no greater, nor more certaine harme befall the fractured skull, than by admitting the aire, by such as are unskilfull. For if the ayre should be hotter than the braine, then it could not thence be refrigerated; but if the braine should be layd open to the ayre, in the midst of Summer, when it is at the hottest, yet would it be refrigerated, and unlesse it were releevd with hot things, take harme: this is the opinion of *Galen*, whereby you may understand that many who have their skulls broken, dye more through default of skill in the curing, than by the greatnesse of the fracture.

Lib. 2, de usu
part. ca. 2.

The Aire
though in sum-
mer is colder
than the braine.

But (when the wound is bound up with the pledgets, clothes, and rowlers as is fit) if the ayre chance to be more hot, than the patient can well endure, let it be amended by sprinkling, and strowing the chamber with cold water, oxycrate, the branches of Willows and Vine. Neither is it sufficient to shunne the too cold ayre, unlesse also you take heed of the over light, chiefly untill such time as the most feared and malignant symptomes are past.

For a too great light dissipates the spirits, encreases paine, strengthens the feaver and symptomes. *Hippocrates* wholly forbids wine, therefore the patient in steed thereof must drinke, Barly water, faire water boyled and tempered with Iulep of Roses, syrupe of Violets, vinegar and the like: water wherein bread crummes have beene steeped, water and sugar with a little juyce of Lemons, or pomecitron added thereto, and such like as the abilitie and taste of the patient shall require. Let him continue such drinckes, untill he be free from malignant symptomes, which usually happen within foureteene dayes.

The discom-
modities of too
much light.

What his drinck
must be.

His meat shall be pappe, ptisan, shunning Almond milkes; (for Almonds are sayd to fill the head with vapours and cause paine) stued damaske Prunes, Raisons and Currance, seasoned with sugar, and a little cinamon (which hath a wonderful power to comfort the stomack, and revive and exhilarate the spirits) Chickens, Pidgeons, Veale, Kid, Leverers, birds of the fields, Pheasons, blacke-birds, Turtles, Partridges, Thrushes, Larkes and such like meates of good digestion, boiled with lettuce, purslane, sorrell, borage, buglosse, succory, endive and the like, are thought very convenient in this case. If he desire at any time to feed on these meates roasted, he may, only dipping them in verjuice, in the acide juices of Oranges, Citrons, Lemons, or Pomegranets, some times in one, and sometimes in another, according to his taste and ability. If any have a desire to eate fish, he must make choyce of Troutes, Gudgeons, Pikes and the like, which live in running and cleare waters, and not in muddy; hee shall eschew all cold sallets and pulse, because they flye up and trouble the head: it will be convenient after meate to use common drige powder; or Aniseed, Fennell-seed or Coriander cornfits, also conserve of Roses, or Marmilate of Quinces to shut up the orifice of the Ventricle, lest the head should bee offended with vapours arising from thence.

Almonds en-
crease the paine
of the head.

What fish he
may eate.

Children must eate often, but sparingly; for children cannot fast so long as those which are elder, because their naturall heate is more strong, wherefore they stand in neede of more nourishment; so also in winter all sorts of people require more plentifull nourishment, for that then their stomackes are more hot than in Summer.

Apher 13. 6.
14. sect. 1.

When the foureteenth day is past, if neither a feaver, nor any thing else forbid, hee may drinke wine moderately, and by little and little, encrease his dyet, but that respectively to each ones nature, strength and custome. He shall shunne, as much as in him lyes, sleepe on the day time, unlesse it happen that a *Phlegmon* seaze upon the braine or *Meninges*. For in this case it will bee expedient to sleepe on the day time, especially from morning till noone, for in this season of the day, as also in the spring blood is predominant in the body, according to the opinion of *Hippocrates*. For it is so vulgarly knowne, that it need not be spoken, that the blood when wee are awake is carryed into the habite and surface of the body; but on the contrary by sleepe it is called into the noble parts, the Heart and Liver. Wherefore if that the blood by the force of the Sunne casting his beames upon the earth, at his rising is carryed into the habite of the body, should againe bee more and more diffused by the strength

Apher. 15, sect. 2

Why sleepe up-
on the day-time
is good for the
braine being
enflamed.
Lib. 2. Epidem.

The discom-
modities ensu-
ing immoder-
ate Watching.

strength and motion of watching, the inflammation in the braine and *Meninges* would be much encreased. Wherefore it will bee better, especially then to stay by sleepe the violence of the blood running into the habite of the body, when it shall seeme to rage and more violently to affect that way. Watching must in like manner be moderate; for too much depraves the temper of the braine and of the habit of the whole body; it causes crudities, paines and heavinesse of the head, and makes the wounds dry and maligne.

Gal. Meth. 13.

Medicines pro-
curing sleepe.

But if the patient cannot sleepe by reason of the vehemencie of the inflammation of the braine and *Meninges*, *Galen* wishes, to wash, besmeare and annoint the head, nose, temples and eares with refrigerating and humecting things, for these stupifie, and make drowfie the Braine and membranes thereof, being more hot than they ought to be. Wherefore for this purpose let the temples bee anointed with *Unguentum populeon*, or *Unguentum Rosatum* with a little rose vinegar, or oxycrate; Let a sponge moistened in the decoction of white or blacke poppie seed, of the rinds of the rootes of Mandrages, of the seedes of Henbane, lettuce, purslaine, plantaine, night-shade and the like. He may also have a broath or barly creame, into which you may put an emulsion made of the seedes of white poppye, or let him have a potion made with ʒj. or ʒiʒ. of the syrupe of poppie, with ʒij. of lettuce water; Let the patient use these things 4 houres after meate, to procure sleepe. For sleepe doth much helpe concoction, it repaires the efflux of the triple substance caused by watching, alwageth paine, refresheth the weary, mitigates anger and sorrow, restores the depraved reason, so that for these respects it is absolutely necessary that the patient take his naturall rest.

The common
dities of sleepe.

If the patient shall bee plethoricke, let the plenitude be lessened by blood-letting, purging and a slender diet, according to the discretion of the Philition who shall oversee the cure.

But we must take heed of strong purgations, in these kindes of wounds, especially at the beginning, lest the feaver, inflammation, paine, and other such like symptomes be increased by stirring up the humors.

Lib. 4. Meth.

Phlebotomie according to *Galen's* opinion, must not onely be made respectively to the plenty of blood, but also agreeable to the greatnesse of the present disease, or that which is to come, to divert, and draw backe that humor which flowes downe, by a way contrary to that which is impact in the part; and which must be there evacuated, or drawne to the next. Wherefore for example, if the right side of the head be wounded, the Cephalicke veine of the right arme shall be opened, unlesse a great *Plethora* or plenitude cause us to open the *Basilica*, or Median, yet if neither of them can be fitly opened, the *Basilica* may bee opened, although the body is not plethoricke.

*Lib. de cur. per-
sanguinis Miss.*

The like course must be observed in wounds of the left side of the head; for that is farre better by reason of the straightnesse of the fibers, than to draw blood on the opposite side; in performance whereof you must have diligent care of the strength of the patient, still feeling his pulse, unlesse a Physition be present, to whose judgement you must then commit all that businesse. For the pulse is, in *Galen's* opinion, the certaintest shewer of the strength. Wherefore we must consider the changes and inequalities thereof, for as soone as we finde it to become lesser and more slow, when the fore-head beginnes to sweate a little, when he feelles a paine at his heart, when he is taken with a desire to vomit, or goe to stoole, or with yawning, and when hee shall change his colour and his lips looke pale, then you must stop the blood as speedily as you can; otherwise there will be danger lest hee poure forth his life together with his blood. Then he must bee refreshed with bread steeped in wine, and put into his mouth, and by rubbing his temples and nosethrilles with strong vinegar, and by lying upon his backe.

But the part shall bee eased and freed from some portion of the impact and conjunct humor by gently scarifying the lippes of the wound, or applying of Leaches. But it shall bee diverted, by opening these veines which are nighest to the wounded part, as the *Vena Puppis*, or that in the middest of the forehead, or of the temples, or these which are under the tongue; besides also cupping-glasses shal be applied

applied to the shoulders sometimes, with scarification, sometimes without; neither must strong, and long frictions with coarse clothes, of all the whole body, the head excepted, be omitted during the whole time of the cure, for these will be available, though but for this, that is, to draw backe and dissipate by insensible transpiration the vapours which otherwise would ascend into the head, which matters certainly in a body that lyes still and wants both the use and benefit of accustomed exercise, are much increased.

The use of
Fractures.

But it shall bee made manifest by this following and notable example, how powerfull blood-letting is, to lessen and mitigate the inflammation of the Braine, or the membranes thereof in wounds of the head. I was lately called into the suburbs of Saint German, there to visite a young man twenty eight yeeres old, who lodged there in the house of *John Martiall*, at the signe of Saint *Michael*. This young man, was one of the household servants of Master *Doncador*, the steward of the Lady *Admirall of Brion*. He fell downe headlong upon the left *Bregma*, upon a marble pavement, whence he received a contused wound, without any fracture of the scull, and being he was of a sanguine temperature, by occasion of this wound, a feaver tooke him on the seaventh day with a continuall *delirium* and inflammation of phlegmonous tumor of the wounded *Pericranium*. This same tumor possessing his whole head and necke by continuation and sympathy of the parts, was growne to such a bignesse, that his visage was so much altered, that his friends knew him not; neither could he speake, heare, or swallow any thing but what was very liquide. Which I observing, although I knew, that the day past, which was the eight day of his disease, he had foure saucers of blood taken from him by *Germaine Agace* Barber-surgion of the same suburbs; yet considering the integrity and constancie of the strength of the patient, I thought good to bleed him againe, wherefore I drew from him foureteene saucers at that one time; when I came to him the day after, and saw that neither the feaver, nor any of the fore mentioned symptoms were any whit remitted, or aswaged, I forthwith tooke from him foure saucers more, which in all made two & twenty; the day following when I had observed, that the symptoms were no whit lessened, I durst not presume by my owne onely advice, to let him the fourth time blood as I desired. Wherefore I brought unto him, that most famous Physition Doctor *Violene*, who as soone as he felt his pulse, knowing by the vehemencie thereof, the strength of the Patient, and moreover considering the greatnesse of the inflammation and tumor which offered its selfe to his sight, hee bid mee presently take out my Lancer and open a veine. But I lingred on set purpose, and told him, that hee had already twenty two saucers of blood taken from him: Then sayd he, Grant it be so, and though more have beene drawne, yet must we not therefore desist from our enterprize, especially seeing the two chiefe Indications of blood-letting yet remaine, that is, the greatnesse of the disease, and the constant strength of the Patient. I being glad of this, tooke three saucers more of blood, hee standing by, and was ready to take more but that he wished mee to differ it untill the after noone; wherefore returning after dinner I filled two saucers more, so that in all, this young man to his great benefit, lost twenty seaven saucers of blood at five times, within the space of foure dayes. Now the ensuing night was very pleasing to him, the feaver left him about noone, the tumor grew much lesse, the heat of the inflammation was aswaged in all parts, except in his eyelids, and the lappes of his eares, which being ulcerated cast forth a great quantitie of Pus or matter. I have recited this history purposely, to take away the childish feare which many have to draw blood in the constant strength of the patient, and that it might appeare how speedy and certaine a remedy it is in inflammations of the head and braine.

A History.

The two
chiefe Indica-
tions in blood
letting.

Now to returne from whence we digressed, you must note that nothing is so hurtfull in fractures and wounds of the head, as venery; not onely at that time the disease is present, but also long after the cure thereof. For great plenty of spirits are contained in a small quantity of seed, & the greatest part thereof flowes from the braine; hence therefore all the faculties, but chiefly the Animall, are resolved, whence I have divers times observed death to ensue in small wounds of the head, yea when they have beene agglutinated and united.

The discom-
modities of ve-
nery in
wounds of
the head.

All

How hurtfull
noyse is to the
fractures of
the skull.

A History.

All passions of the minde must in like sort be avoided, because they by contraction and dissipation of the spirits cause great trouble in the body and minde. Let a place be chosen for the Patient as farre from noyse as can be, as from the ringing of bells, beatings and knockings of Smithes, Coopers, and Carpenters, and from high-ways through which they use to drive Coaches; for noyse encreases paine, causes a fever, and brings many other symptomes.

I remember when I was at *Hisdin* at the time that it was besieged by the forces of Charles the fifth, that when the wall beaten with the Cannon, the noyse of the Ordinance caused grievous torment to all those which were sicke, but especially those that were wounded on their heads, so that they would say, that they thought at the discharging of every Cannon that they were cruelly stricken with staves on that part which was wounded; and verily their wounds were so angled herewith, that they bledde much, and by their paine and feavers encreased, were forced with much sighing to breathe their last.

Thus much may serve to be spoken of the cure in generall, now we will out of the monuments of the ancients, treat of the particular.

CHAP. XV.

*Of the particular cure of Wounds of the head, and of the
musculous skinne.*

Of a simple
wound of the
flesh and the
skinne.



Let us beginne with a simple wound, for whose cure the Chirurgion must propose one onely scope, to wit, Vnion; for unlesse the wound pierce to the skull, it is cured like other wounds of the fleshy parts of our bodies. But if it be compound, as many wayes as it is complicate, so many indications shew themselves. In these the chiefeest care must bee had of the more urgent order and cause.

A degestive
medicine.

A sarcoticke
Medicine.

An Epuloticke.

A History.

Therefore if the wound shall be simple and superficially, then the haire must first bee shaven away, then a plaister applied made of the white of an egge, bole Armenicke and Aloes. The following day you must apply *Emplastrum de lanna*, or else *de gratia Dei*, untill the wound be perfectly healed. But if it be deeper and penetrate even to the *Pericranium*, the Chirurgion shall not doe amisse, if at the second dressing he apply a digestive medicine (as they call it) which may be made of Venice Turpentine, the yolkes of egges, oyle of Roses and a little saffron, and that shall be used so long, untill the wound come to maturation; for then you must adde honey of Roses and Barly floure to the digestive. Hence must we passe to these medicines, into whose composition no oyle, or unctious bodies enters, such as this; *R. Terebinth. veneta ʒij. Syrupi rosar. ʒj. pul. aloes, Myrrha, & mastich. an ʒʒ.* Let them all be incorporated and made into an unguent, which shall be perfectly regenerated; then it must bee cicatrised with this following powder. *R. Aluminis combusti, corticis granatorum combusti. an. ʒj. Misceantur simul & fiat puluis:* but if the wound be so large that it require a suture, it shall have so many stiches with a needle, as need shall seeme to require.

Whilest I was at *Hisdin*, a certaine soldier, by falling of the earth whilest he undermined, had the Hairy scalpe so pressed downe even to the *Pericranium*, and so wholly separated from the beginning of the hinde part of his head, even to his forehead, that it hung over his face. I went about the cure in this manner; I first washed all the wound with wine, a little warmed, that so I might wash away the congealed blood mixed with the earth; then I dried it with a soft linnen cloth, and laid upon it Venice Turpentine mixed with a little *Aqua Vita* wherein I had dissolved some *Sanguis Draconis*, Mastich and Aloes; then I restored the hanging skinne to its former place, and there stayed it with some stiches being neither too strait, nor too close together, for feare of paine and inflammation, (which two chiefly happen whilest the wound comes to suppuration) but onely as much as should serve to stay it on every side, and to keepe forth the ayre, which by its entrance doth much harme to wounds:

the

What things
we must ob-
serve in sowe-
ing.

the lower sides of the wound, I filled with somewhat long and broad tents, that the matter might have passage forth. Then I applyed this following cataplasme to all the head. *R. farina hordei & fabarum an. ʒvj. olei rosati ʒiij, aceti quantum sufficit, fiat cataplasma ad formam pultis;* this hath a faculty to dry, coole, repell mitigate paine and inflammation, and stay bleeding.

I did not let him blood, because hee had bled much, especially at certaine arteries which were broken neere his temples; he being dressed after this manner grew well in a short time.

But if the wound bee made by the biting of a wilde beast, it must bee handled after another manner, as shall appeare by this following history. As many people on a time stood looking upon the Kings Lyons, who were kept in the Tilt-yard at Paris for the delight of King Henry the second, and at his charges: it happened that one of the fiercest of them broke the things wherein he was tyed, and leaping amongst the company, he with his pawes threw to the ground a Girl of some twelve yeeres old, and taking her head in his mouth, with his teeth wounded the muscous skinne in many places, yet hurt not the scull. She scarce at length delivered by the Master of the Lyons from the jawes of Death and the Lyon, was committed to the cure of Rowland Clares Chirurgion; who was there present by chance at the same time; some few dayes after, I was called to visite her; she was in a fever, her head, shoulders, brest and all the places where the Lyon had set his teeth, or nailes, were swelne, all the edges of the wounds were livide, and did flow with a watrish, acride, virulent, cadaverous, darke greene and stinking matter, so that I could scarce endure the smell thereof; she was also oppressed with pricking, biting and very great paine; which I observing, that old saying came into my minde which is: That all wounds made by the bitings of beasts, or of men also, doe somewhat participate of poyson. Wherefore there must principally great care bee had of the venenate impression left in the wounds by the nailes and teeth, and therefore such things must bee applyed, as have power to overcome poison. Wherefore I scarified the lips of the wounds in divers places, and applyed Leaches to sucke out the venenate blood, and ease the inflammation of the parts, then I made a Lotion of *Aegyptiacum*, Treacle and Mithridate after the following manner.

R. Mithrid. ʒj theriac. ʒij. aegyptiac. ʒʒ. dissolvantur omnia cum aqua vite, & Cardui ben. Let the wounds be fomented and washed with it warme; besides also Treacle and Mithridate were put in all the medicines which were either applyed or put into the wound; and also of the same with the conserves of Roses and Buglosse dissolved in the water of Sorrell and *Carduus benedictus*, potions were made to strengthen the heart and vindicate it from malignant vapours.

For which purpose also this following *Epithema* was applyed to the region of her heart. *R. aqua rosar. & nenuphar, an. ʒiiij. aceti scillitici ʒj. corallorum, santalorum alborum & rubrorum, rosar rub. pulveris spodi. an. ʒj. Mithridatij, theriace, an. ʒij. flo. cordial. pulveris atorum p. j. croci ʒj.* dissolve them altogether, make an Epitheme and apply it to the heart with a scarlet cloth or sponge, and let it bee often renewed. Verily she dressed after this manner, and the former remedies but once used, paine, inflammation and all the malignant symptoms were much lessened; to conclude she recovered, but lingred and was leane some two yeares after, yet at length she was perfectly restored to her health and former nature. By which you may understand, that simple wounds must be handled after another manner, than these which have any touch of poison.

But now that we may prosecute the other affects of the hairy scalpe, say that it is contused with a blow without a wound, that which must bee first and alway done, (that so the affect may better appeare, and the remedies which are applyed may take more effect) the haire must be shaven away, and at the first dressing a repelling medicine applyed, such as is this following *Oxyrhodinum*. *R. ol. ros. ʒiij. album. ovorum nu. ij. pulveris nucum cypressi, balanst. alumin. rocha, rosar. rub. an. ʒj.* Let them be all incorporated, and make a medicine for the former use, or in steed thereof, you may apply the cataplasme prescribed before consisting of *Farina hordei, fabarum, aceto & oleo rosaceo*. But such medicines must be often renewed, When the paine and defluxion

When we must not let blood in wounds.

A History.

The bitings of man and beasts are venenate.

Theriacall pickt Medicines.

A Cordiall Epithema.

The cure of the Hairy scalpe when it is contused.

A repelling medicine.

A discussing
Fomentation.

are appeased, wee must use discussing medicines for the dissipation of that humor which remaines impacted in the part; R *Emplastri de macilagin.* ʒij. *oxicroces, & emp. de meliloto, an.* ʒj. *olei chamam. & anethi, an.* ʒʒ. *malaxentur simul & fias emplastrum ad usum dictum.* Such a fomentation will also be good. R *vini rub. lib.* iiij. *lixiviij. com. lib.* ij. *nucis cupressi contus. nu.* x. *pul. myrtillorum ʒj. rosar rub. absinth. fol. salvia, majorana, stachados, florum chamam. melil. an. M. B. aluminis rocha, radices cyperi, calami aromatici an.* ʒʒ. *bulliant omnia simul,* and make a decoction to foment the grieved part. After somewhat a long fomenting it, whereby it may the better discusse, dry and exhaust the concrete humor; the head must be dried & more discussing things applied such as the Cerate described by *Vigo* called *de minio*, which hath an emollient and digestive faculty in this forme. R *Olei chamam. lilior. an.* ʒx. *olei massich. ʒij. pinguedinis vervecis lib.* j. *litharg. auri, ʒviij. minij ʒij. vini boni cyathum unum, bulliant omnia simul baculo agitando, primum quidem lento igne, mox vero luculentiore, donec tota massa colorem nigrum vel subnigrum contrahat; adde in fine coctura Terebinth. lib.* s. *pulveris massich. ʒij. gum. elemi. ʒj. cera quantum sufficit, bulliant rursus una ebullitione & fiat empl. molle.* But if the humor be not thus discussed, but onely grow soft, then the tumor must be quickly opened, for when the flesh is inflamed and putrified through occasion of the contained humor, the bone under it putrifies also by the contagion of the inflammation and the acrimony of the matter falling upon the bone. When you have opened it, wash away the filth of the ulcer with this following detergentive medicine. R *syrapi ros. & absinth. an.* ʒj. *terebinth. ʒʒ. pul. iros, aloes, mastichis, myrrha, farina hordei an.* ʒʒ. In steed hereof if there be great putrefaction *Aegyptia*, either by it selfe, or mixt with an equall quantity of *Vnguentum apostolorum* may be put into the ulcer. When the ulcer is cleansed it will be time to use scarotike and cicatrizing medicines.

Ceratum de
Minio.

Deterfive or
cleansing me-
dicines.

CHAP. XVI.

Of the particular cure of a fractured or broken scull.

Why the *Pericranium*
hath such ex-
quisite sense.



IF the scull be broken, so that it be needefull to trepan it, or to elevate and lift it up, or scrape it away, the musculous skinne being cut as wee formerly noted, the *Pericranium* shall be plucked from the scull, as wee sayd before; which because it can hardly bee done without great paine, by reason of its exquisite sense and connexion with the membranes of the braine, we must labour to mitigate the paine for feare of inflammation and other accidents. Therefore the first dressing ended and the corners of the wound drawn each from other; at the second dressing put to the wound, a digestive (as they terme it) made of the yolke of an egge, and oyle of Roses, but you must apply no humide thing to the bone, because we desire to keepe it sound and whole. For *Galen*s opinion is, that bared bones must not be touched with unctuous things, but rather on the contrary all dry things must bee applied to them, which may consume the superfluous humidity. Therefore we must lay some linte and the cephalicke powders which we shall hereafter describe, upon the bone we intend to preserve, and must have diligent care that it be not offended either by the the ayre, or touch of humide medicines. You must in Trepaning have a speciall care of the *Crassa Meninx*. For I have often observed a great quantity of blood to have flowed from some broken vessel, which adhered to the second Table: neither must we presently and forthwith stay such bleeding, but suffer it to flow according to the plenitude and strength of the patient; for thus the feaver, and together therewith the rest of the symptoms are diminished.

Gal. 6. Meth.

The bones are
offended with
the applicati-
on of humide
things.

Lib. de ulceris

For in the opinion of *Hippocrates*, in every greene wound it is good to cause often bleeding, except in the bellies; for thus the vehemencie of paine, inflammation and other accidents will bee lesse troublesome; also it is not amisse too for old ulcers to bleed much, for so they are freed from the burden of the impact humors. When you thinke it hath bled sufficiently, it may be stanchd with this following medicine described by *Galen*.

Gal. 6. Meth.

R *pulveris Aloes ʒij, thuris, mastiches an. ʒʒ. albumina ovorum nu. ij.*
agitentur

agitantur simul cum pilis leporinis minutim incisis, fiat medicamentum. When the bleeding is stayed, you shall for the aswaging of paine, droppe upon the *Meninx* some Pidgeons blood, yet warme by opening a Veine under the wing, then it shall bee strewed ouer with this following powder, *R Aloes, thuris, myrrha, sanguinis draconis an. ʒj. Misco, fiat pulvis subtilis.* Also you may make an irrigation with Rose Viegear, or some repelling medicine; such as is a cataplasme *ex farinis, & oleo rosaceo.* Which may bee applyed untill the fourth day to aswage and mitigate paine.

Vigoes Cerate will be of good use in this case, as that which in my opinion is most fit for fractures of the scull, because it drawes powerfully, resolves and dries moderately, and by reason of the smell refreshes the animall spirits, and strengthens the braine and membranes thereof, as you may easily perceive by things which enter into the composition thereof.

Vigoes Cerate
good for a
broken scull,

R Olei ros. Omph. resinae pini. gummi Elemi. an. ʒij. Mastiches ʒiʒ. pinguedinis vervecis castrati ʒiʒ. foliorum beton. caprifol. anthos an. M. j. ammoniaci ʒʒ. granorum tinctorum ʒx. liquata pinguedine terenda terantur, & ammoniacum simul cum aceto scillitico, eliquetur; deinde bulliant omnia simul in lib. ij. vini boni, lento igne usque ad consumptionem vini, deinde exprimantur; cum expressione addantur terebinth. Ven. ʒiiij. cera alba quantum sufficit, fiat cerotum molle ad usum prae dictum. Also let the necke, and all the spine of the backe bee annointed with a liniment, which hath force of mollifying the Nerves, lest they should suffer convulsion; such is this.

R Ruta, marrubij, roris mar. ebulor, salvia, herb. paralyf. an. M. s. rad. Ireos, cypervi, baccarum lauri. an. ʒj. florum chama. melil. hyperici, an. M. j. pistentur & macerentur omnia in vino albo per noctem, deinde coquantur in vase duplici cum olei lumbricorum, liliorum, de terebinthina, axungia, anseris & hum. an. ʒij usque ad consumptionem vini, postea colentur & in colatura adde terebinth. venet. ʒiiij. aqua vite ʒʒ. cera quantum sufficit. fiat linimentum secundum artem.

A liniment
good against
convulsions,

But when the paine is aswaged, we must abstaine from all such unctuous things, lest they make the wound become sordide and maligne, and putrifie the adjacent parts, and consequently the *Crassa Meninx* and scull; for the integrity of all parts may be preserved by their like, and such are dry things in a fracture of the scull. Wherefore all humide and oyely things must be shunned in the cure thereof, unless peradventure there shall bee some neede to mitigate paine and bring the humor to suppuration.

For according to *Galen*, we are oft forced for a time to omit the proper cure of the disease, so to resist the symptomes; furthermore *Hippocrates* would have us not to foment the scull, no not with wine, but if we doe, to let it be but with very little. *Vidius* interprets that little to be, when there is feare of inflammation; for wine if it be red, tart and astringent, hath a repressing refrigerating and drying facultie: for otherwise all wine although it heates and dries by its faculty, yet it actually humects and cooles, both which are very hurtfull in wounds of the head, or a fractured scull, especially when the bone is bare; for from too much cooling of the braine there is feare of a convulsion, or some other evill symptome.

Gal. 4. Meth.

How farre
humide things
are good for a
fractured scull;

Wherefore let this be ratified, that is, We must not use humide and unctuous medicines in wounds of the head, except for curing of an inflammation, or the mitigation of paine caused thereby. Therefore let the bared scull bee strewed with catagmaticke and cephalicke powders, (being so called by the ancients, for that they are convenient and good in fractures of the scull & the rest of the bones) for by their drynesse they consume the superfluous humiditie, and by that meanes helpe nature in the separating of the broken bones, and the regenerating of flesh. Such powders usually consist of such things as these ensuing.

Why Cepha-
licke or Ca-
tagmaticke
powders are
good.

Thus, *radix Iridos florent. farina Hordei, & Ervi, pulvis Aloes Hepaticae, sanguis Draconis, mastiche, Myrrha, rad. Aristolochiae, Gentianae*; and generally all such simples as have a drying and an abstergent faculty without biting; but you must not use these things before the paine, inflammation and apostumation bee past; that is then, when the membranes must be cleansed, the bones scaled, and the flesh generated.

When to used,

How to be
mixed when
they are to bee
applied to the
Meninges.

For the scull by how much it is the dryer, by so much it requires and more easily endures more powerfull and dryer medicines, than the *Dura Mater* or *Pericranium*, as that which in quicknesse of sense comes farre short of these two. Wherefore when you would apply the forementioned cephalicke pouders to the *Meninges*, they must be associated and mixed with honey, syrupe of roses or of wormewood and such other like, that so their too violently drying faculty may be alayed and tempered.

CHAP. XVII.

why we use Trepaning, in the Fractures of the scull.



Here are foure causes of this remedy. The first is, to raise up the depressed bones, and take forth their fragments, which presse upon the *Meninges*, or also upon the substance of the braine. The second is, that the *Sanies* or matter may bee evacuated, clensted, wasted, and dried up, which by the breaking of any vessell is poured forth upon the Membranes, whereby they are, and not they onely, but the Braine also is in great danger of corruption. The third is, for the fitter application of medicines, convenient for the wound and fracture. The fourth is, that so we may have something whereby we may supply the defect of a Repelling Ligature, and such an one as may hinder defluxions; for such a Ligature cannot take place here as it may in the other parts of the body, by reason of the Sphæricall or Round figure of the head, which doth not easily admit binding; and then the density and hardnesse of the interposed scull is a meanes that the vessells lying under it (by which usually the defluxion comes) cannot easily be bound with a rowler sufficiently to repell the running blood. And the externall vessells, (to whom the force of the Ligature may come) cannot bee bound without great paine, and danger of Inflammation.

Why a repell-
ing Ligature
cannot be
used in frac-
tures of the
Scull,

For by such a compression the pulsation of the Arteries would be intercepted, and the efflux of the fuliginous excrements which use to passe through the sutures of the scull, would be supprest, by reason of the constriction of these sutures.

Besides also, the blood would thus bee forced from the wounded part without, to within into the Membranes and Braine, whence paine, Inflammation, a Feaver, Abscesse, Convulsion, Palsie, Apoplexie, and lastly death it selfe would ensue.

And these are the chiefe causes, that Trepaning is necessary in fractures of the scull, and not so in the fractures of other bones.

How the pa-
tient must be
placed when
you Trepan
him.

But before you apply or put to your Trepan, the Patient must bee fitly placed or seated, and a double cloth must be many times wrapped about his head, and then his head must be so laid, or pressed upon a Cushion or pillow, that when you come to your operation, it may not sinke downe any further, but remaine firme and stedy.

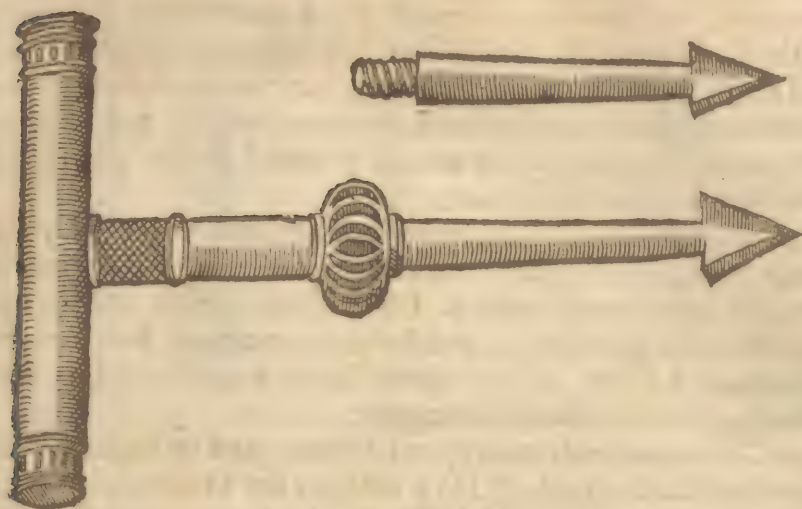
Then you must stoppe the patients eares with Cotton-wooll, that so hee may not heare the noise made by the Trepan, or any other Instrument.

What to be
done before
the applicati-
on of the
Trepan.

But before you put to your Trepan the bone must be pierced with an Instrument, having a three square point, that so it may bee the more speedily and certainly perforated. The point thereof must be no bigger then the pin of the Trepan, that so the Trepan which is forthwith to bee applyed may stand the more firmer, and not play to and againe in too wide a hole.

The shape of this Instrument is not much different from a Gimblet, but that the point is three-square, and not twined like a screw; as you may perceive, by this following figure,

*A Gimblet or peircer to perforate the scull, before the setting
too of the Trepan.*

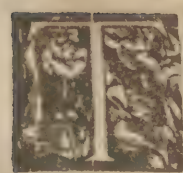


A. Shewes the handle.

B. The points which may be screwed and fitted into the handle.

CHAP. XVIII.

A description of Trepan.



Trepans are round sawes, which cut the bone circularly more or lesse according to their greatnesse; they must have a pinne standing in the middle a little further out than their teeth, so to stay and hold fast the Trepan that it stirre neither to this side nor that, untill it bee entred and you have cut through the first table at the least: then you must take forth the pinne, lest going quite through the bone, it may pricke or hurt the *Crasse Meninx*.

Wherefore when you have taken forth the pinne, you may safely turne it about untill you have cut through both the tables; Your Trepan must also have a cappe, or somewhat to engirt or encompasse them, lest no way hindred they cut more of the bone than we would, and in conclusion runne into the *Meninx*.

They must also be anointed with oyle, that so they may cut the more readily and gently; for thus Carpenters use to grease their sawes. But you must, during the time of the operation, often dippe them in cold water, lest the bone by attrition become too hot; for all hard solide bodies by quicke and often turning about, become hot; but the bone made more hot and dry, is altered and changeth its nature, so that after it is cut, more of it scales and falls away.

Now you must know that the bone, which is touched with the Trepan, or the Aire, alwayes casts off scales, for the speedier helping forwards; whereof, you must strew upon it pouders made of Rocket, Briony, wilde Coucumber and *Aristolochia* roots. When the bone is sufficiently scaled let this following powder be put upon it, which hath a faculty to cover the bone with flesh, and to harden it with drynesse convenient to its kinde.

R Pulver. Treos Illyrice, Aloes, Manna thuris, Myrrha, aristolochia an. 3j. Flesh being by this meanes generated, let it be cicatrized by strewing upon it the rindes of Pomegranats and Alome burnt.

Neither shal the Chirurgion forcibly take away these scales, but commit that whole worke to nature, which useth not to cast them off before that it hath generated flesh under them. For otherwise if he doe any thing rashly, hee brings new corruption to

The harme the bone receives by being heated with the Trepan.

What things hasten the scaling of the bone.

The bone must not be forcibly scaled.

the bone; as we shall more at large declare, when wee come to treat of the *Caries* or *Rottennesse* of bones.

A caution in
Trepaning.

He which useth the Trepan, must consider this, that the head is of a round figure, and also the Trepan cuts circularly, and therefore it is impossible to cut the bone so equally on every side, as if it were performed upon a plane body. Furthermore the thickness of the scull is not alike in all places; wherefore you must looke, and marke whether the Trepan goe not more deepe on one side than on the other, which you may doe by measuring it now and then with a pinne or needle; and if yee finde that it is cut deeper on one side, than on the other, you must presse downe the Trepan more powerfully upon the opposite part.

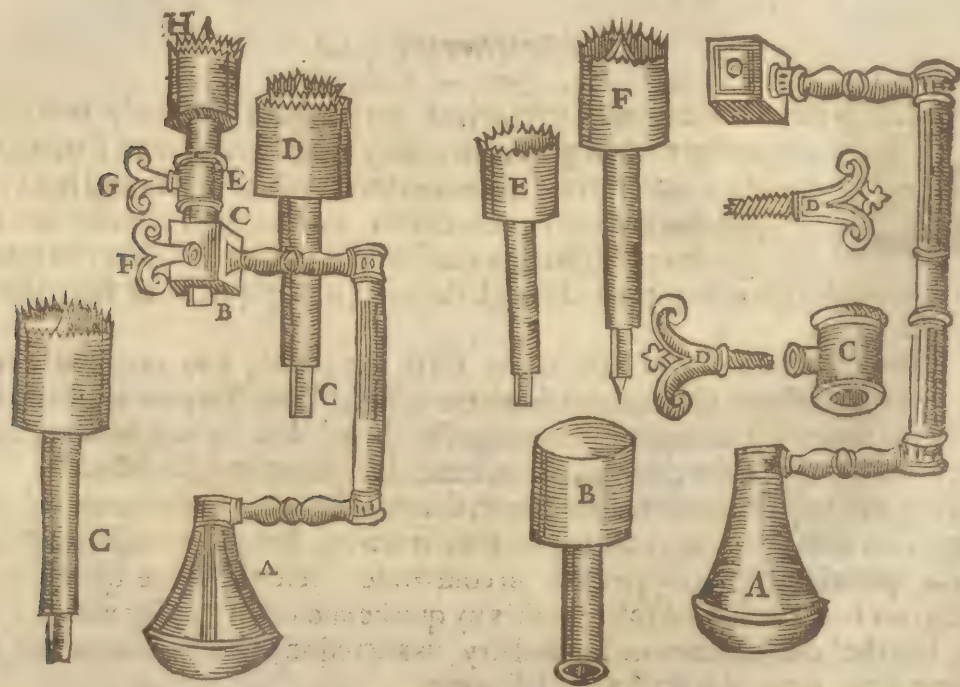
A safe and
convenient
Trepan.

But seeing there are many sorts of Trepan invented and expressed by many men, yet if you weigh and rightly consider them all, you shall finde none more safe, than that I invented, and have here delineated. For it cannot peirce one jot further into the scull, than he pleases that useth it, and therefore it cannot hurt either the *Meninges* or the *Braine*. An Iron head or cover stayes it as a barre, that it can penetrate no further than you shall thinke it requisite.

This head or Cover is to be drawne up and downe, and set higher and lower, as he which uses it shall thinke good, and so it will stay the Trepan that it shall not goe a haire bredth beyond your intended depth. So that henceforwards there shall be no Chirurgion, howsoever ignorant in the performance of his Art, which by the benefit of such a Trepan may not performe this operation without any danger or feare of danger of touching the *Dura Mater*; the hurting whereof, puts the life in jeopardy.

The figure of our Trepan opened and
taken in peeces.

The figure of the same Trepan fitted and
put together.



A. shewes the whole handle or Brace of the
Trepan.

B. The Cover or Cap of the Trepan.

C The female.

D.D. The screw pins which hold and stay the
female and Trepan.

E. The Trepan without his pinne.

F. The Trepan furnished with its pinne.

A. Shewes the Brace and Trepan fitted in
every point.

B. The place into which the Trepan is put
and fitted.

C.C.C. The upper end of the Trepan which is
to be fitted and put into the Braine.

D. The Trepan with its cover or cap upon it.

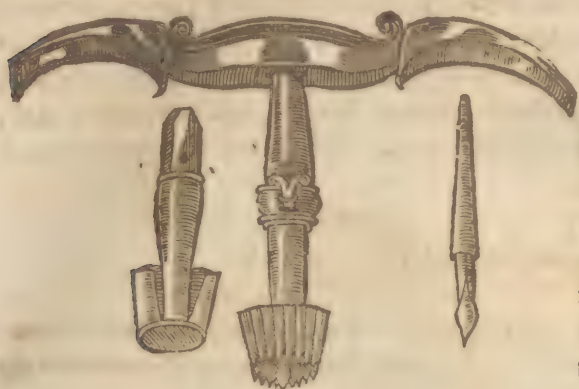
E. The female.

F. A screw pin by the twining whereof the
Trepan is fastened in the Brace.

G. Another screw pin which fastnes the female
closer to the Trepan.

H. The Three square point.

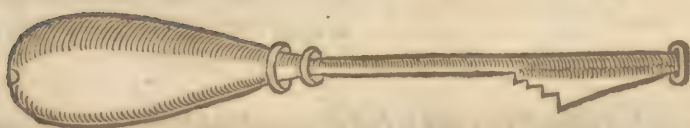
In stead of the other Trepan set forth by the Author, I have thought fit to give you the figure of that Trepan that is here most in use, and the fittest therefore, as it is set forth by Mr. Doctor *Crooke*.



A Terebellum or Gimblet consisting of three branches.



A Lentill-like cutting Scraper.



All these particulars of the Trepan taken in sunder, you may see united and fitted together in the other figure. But when you cannot bring out the bone which you have cut off with your Trepan; then you may take it forth with the *Terebellum* or Gimblet here exprest, that is, screwing the point thereof into the hole made by the threesquare pin; the handle of this Instrument may also serve in stead of a Levatorie.

When with the Gimblet you have drawne or taken forth that part of the scull which was cut away by the Trepan; if there shall bee any sharpe splinters in the second table, which may hurt and pricke the *Meninx*, when it is beaved up by the motion of the braine, they must be shaved away and planed with this Lentill fashioned scraper, being so called, because it hath the head thereof fashioned and smooth like a Lentill, lest being sharpe it should hurt and pricke the membrane in the smoothing thereof.

But if by reason of the thickestesse, the scull cannot bee cut with this Lentill-like scraper, you may use the cutting scrapers and a mallet. The mallet must be of leade, that so it may shake the braine as little as may be. But you must diligently with your mallets take forth the sharpe splinters, and peeces of the bone. But if the fractured part of the scull bee such, that it will not admit that section which is requisite for the bared bone, as when the fracture is upon the temporall muscle, or at the sutures; then in the stead of one Trepan, two or three must be applyed, if the necessity of the present case so require, and that within a very small compasse; but they must not bee applyed to the fractured part, but nigh thereto, as we shall shew more at large in the following chapter.

But the Trepan shall be applyed so neere to each other, that the ring of the second may be joyned with the ring of the first and third. But if a fracture shall happen to light upon a suture, then you must not apply a Trepan to it, but use two thereto on each side; he that shall doe otherwise, shall reare in sunder the nervous and membranous fibers, and also the veines and arteries by which the *Dura Mater* is fastned to the scull, and yeelds matter to the *Pericranium*. He which shall apply one Trepan, that

The use of a
Leaden Mal-
let.

Why a Tre-
pan must not
be applyed to
the sutures.

Why two
Trepan are
to be used to a
fractured su-
ture.

that is, but upon one side of the future, he shall not bee able to get forth all the *Sanies* which is fallen downe on both sides by reason of the partition of the *Crasa Meninx* which lyes betweene, and rises up by the futures of the scull.

To conclude, when for what cause soever we cannot make use of a Trepan, we may imploy this instrument, if so bee as much of the bone bee bared as is needfull. It is made in forme of a paire of Compasses, and by meanes of a screw may bee opened more or lesse as you please. You as need shall require may change the points, and put other in their places, for they may bee fitted to one side of the compasse with a screw.

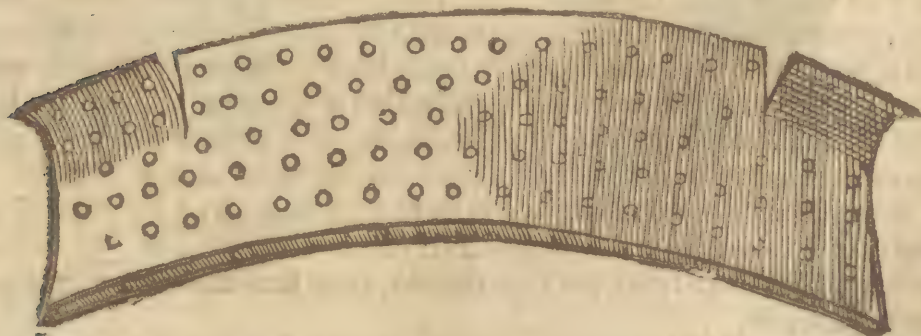
A paire of cutting Compasses to cut forth the scull.



- A. Shewes the one legge of the cutting compasses, which as you carry it about cuts the scull.
- B. The screw which fastens the point to the legge of the compasses.
- C. C. Two different points which may bee screwed to the legge of the Compasses, as neede shall require.
- D. A great screw which fastens upon an Iron string, alongst which the one of the legges of the Compasse running, may bee widened and straitned as you please.

Moreover it is fit that the one legge of such cutting compasses should stand firme and steddly, whilest the other is drawne circularly to cut. Wherefore it is fit you have an Iron plate made full of little holes, wherein you may firmly stay that legge of the compasse, least it waver against your will; it is requisite that this plate be crooked, (because the head is round) that so it may be fitted to any part thereof.

A crooked Iron Plate fit to sustaine and hold steddly one legge of the Compasse upon the head.



Another

Another paire of Compasses of the like nature and use, which may be widened and straightened by a screw.



CHAP. XIX.

Of the places of the skull whereso you may not apply a Trepan.

If of all, you shal not apply a Trepan, to a bone that is so broken that it is wholly, or in the greater part thereof divided from the skull by the violence of the stroake, least by your weight and pressing of the Trepan, you force it downe upon Membrane.

A bone almost severed from the skull must not be Trepaned.

Secondly, you must not apply one to the fractured Sutures, for the reasons mentioned in the former chapter.

Thirdly, nor to that part of the forehead which is a little above the eye-browes, for these reasons we gave you before in the twelfth chapter. For there is in that place under the first table of the skull it selfe, a large cavities replenished with a certaine white and tough humor, as also with a certaine spirituouse and ayrie substance, placed there by nature, to prepare the aire which ascends to the braine by the Nose-thrills: unlesse the Chirurgion observe and be mindfull hereof, he may bee deceived, supposing this cavity to be an Effrature of the bone and a depression thereof.

A notable cavity in the forehead bone.

Fourthly, neither in the lowest parts of the skull, lest the marrowy substance of the Braine, by reason of its weight, should slide through the hole made by the Trepan.

Fifthly, neither to the *Bregma* bones of Children, as those which as yet have not acquired just soliditie, to endure the impression of a Trepan.

Sixtly, nor to the temples by reason of the Temporall muscle, the cutting whereof in the opinion of *Hippocrates* causes convulsion of the opposite part. For being cut athwart it looses its proper action, that is, to move and lift up the lower Jaw; but then the opposite Temporall muscle being whole and perfect, using its strength, (his Antagoniste suffering it, and not resisting or labouring any thing at all to the contrary) it drawes the same Jaw to it, whereupon the mouth and all the parts of the face are drawne awry, and suffer a Convulsion towards the sound part, the other being resolved according to *Hippocrates* his rule.

Lib. de Vul. can.

For as often as the muscles of one kinde are equall in number, magnitude and strength on each side, the resolution of the one part, causes the Convulsion of the other.

A rule out of Hippocrates.

Neither doth this danger alone arise from the cutting of the Temporall muscle, but also another, which is, that this muscle when we eate and speake, is in perpetuall motion, whereby it comes to passe, that being once cut, it is scarce ever united againe, besides also the commissure or joyning together of the stonie bones lye under it.

What discommodities arise from cutting the temporall muscle.

But by the second caution we are forbid to Trepan upon the sutures, moreover also

also many Veines, Arteries and Nerves are spread over the substance thereof, so that by cutting of them, there is danger of many and maligne symptoms, as paine, inflammation, a feaver, a convulsion not onely of the part it selfe, but also of the whole body, whence lastly death ensues.

Wherefore let no Chirurgeon be so foole hardy, as to attempt the cutting of this muscle, so to Trepan the bone which lyes under it, rather let him apply his Trepan above it, or on the side thereof, or as neere to the affected part as he can, as I did in a Gentleman caled Monsieur de la Breteſche.

A history.

He in the triumphant entrance of King Henry the second, into the Citty of Paris, was so hurt with a stone, that the *Os Petrosum* or scaly bone, was broken with the violence of the blow, and the temporall muscle was vehemently contused, yet without any wound. I being called the next day (viewing the manner of the hurt, and the condition of the wounded part) thought good to bring some Physitions, and Chirurgions with me to consult hereof, of whom when some thought it expedient presently to divide the Temporall muscle, that baring the bone we might apply a Trepan, and so take forth the broken bones: I on the contrary begun earnestly to withstand that opinion, citing that saying of Hippocrates, *ex libro de vulneribus Capitis*, wherein Chirurgions are forbidden to cut such muscles, for feare of the forementioned symptoms; also I cited experience, how that I had often observed all those which had this muscle cut, dyed with a convulsion; but that it should be farre better, that neere above the fracture the bone should be Trepaned, not touching the Temporall muscle at all if he could. When all of them at the last had inclined to my opinion, I presently divided the musculous skinn which was over the upper part of the fracture with a three cornered section: the day following which was the third of his disease I Trepaned him, and after I had done, some few dayes after, I tooke out some foure splinters of the broken bone; and I put in a plaine leaden pipe, by which (I wishing the patient ever when I dressed him to hold downe his head, to stoppe his mouth and his nose, and then strive as much as in him lay to put forth his breath) much sanious matter came forth, which was gathered betweene the scull and *Crasſa Meninx*. Other filth which stucke more fast, I washed out with a detergent decoction, injected with such a syring as is heere exprest; And I did so much, God blessing my endeavours, that at length he recovered.

A Plane leaden pipe for to carry forth
the Sanies gathered under
the scull.

A little syring fit to make injections
withall.



A history.

The like chance and fortune befell Monsieur de Pienne at the seige of Metz. For he as hee fought at the breach of the wall, had the bone of his Temples broken with a stone strucke out of the adjacent wall, by a peece of Ordinance shot from the Emperours campe; he presently fell downe with the blow, and cast blood out of his mouth, nose and eares, with much vomiting, and remained dumbe & as it were senselesse almost foureteene dayes, so that he knew none of the by-standers. He had often palpitations, and convulsive twitchings, and his face was swollne. His forehead bone was Trepaned at the side of the Temporall muscle by the hand of Peter Aubert the Kings Chirurgeon: and although on the 25. day, soft flesh, endued with exquisite sense grew out of the hole made with the Trepan, whose growth could not bee hindered by Catharticke powders, yet at the length he recovered.

The Ancients called this kinde of growing flesh a *Fungus* [i. a Mushrome] for that it is soft, and growes with a small roote and broad top like a mushrome: but it encreases and decreases, according to the plenty of the flowing matter, and industry of the Chirurgeon hindring by art the growth thereof.

This flesh stinkes exceedingly, they commonly call it *Ficus sancti Piacry* [i. the figge]

Figge of *S. Fiacye*.] This disease commonly hath its originall after this manner. Even as in the bodies of Trees from the excrements of nourishment, a certaine halfe putrid grosse and viscos humor sweats through the barke, and gathered together by little and little growes into a Mushrom, so blood melancholly both in temper and consistence, springs from the broken vessels of the scull and *Crassa Meninx*, which also is sent sometimes by nature for the necessary repairing of the flesh in these parts, whereupon a certaine *fungus* breedes, which in *Galens* opinion, favors or partakes of the nature and condition of the parts to which it growes; though in generall it bee of the nature of maligne warts, or excrescences. But for to take away such *Fungi*, you must apply medicines which have a specifick faculty to waste superfluous flesh; such are these which strongly dry, and gently waste and cate, such as this which follows.

The generatio
on of a *Fungus*.

R. Sabine ʒij. *ocra* ʒj. *pulverisentur simul*, *aspergatur caro excrescens*, or else. *R. Hermodactylorum combustorum* ʒss. make a powder for the same use. But if so be that this fungous flesh come to such growth, (as it often happens,) as to equall the bignesse of an egge, it must be tyed and strait twichted, close to the roote with a silken thred; and when it shall fall away by reason of this binding, the place must be strewed with the fore-mentioned powders, for so it will be more certainly cured, than with more acride cathartickes.

CHAP. XX.

Of the corruption and Caries, or rottennesse of the bones of the Head.



Here sometimes followes a corruption and Sphacell of the fractured bones of the scull upon wounds of the head; which happens either because they are touched by the ayre, which they are not sensible of; or for that the *Sanies* putrifying and detained under them, hath infected them with like putrifaction; or by the cure unskillfully handled, they by the rash application of suppurating and oyle medicines becoming more moyst, and so undergoing an unnaturall change of their proper complexion and native temper, as we shall shew more at large when we shall treat of the reason of the *Caries* in the *Lues venerea*. We shall know this unnaturall change and corruption, partly by sight, that is, when from white they become to be yellowish, livide and black; partly also by putting downe a probe; when as it meets with nothing smooth and slippery, but feelles rough in many places, and besides also when it enters and easily penetrates with a small thrusting downe into their substance, as if it were fungous. Yet this last signe may often deceive you, for I have diverse times observed rotten bones, which being bare had long suffered the injury of the ayre, to become so hard that a Trepan would scarce peirce them; for it is putride humidity which makes the bones soft and fungous; but the ayre by drying them exhausts this humiditie and lastly dries it, whence followes such contumacious hardnesse. This signe will bee farre more certaine, if the flesh which is growne upon the bone be more soft than is fit, loose and have little or no sense or feeling. You may correct and amend this corruption of the bone with cauteries as well actuall, as potentiall, or with the powders of Aloes, Gentian, *Aristolochia*, centaury, *cortex pini*, as,

Why when
the scull is
broken the
bones some-
times become
soule or rot-
ten.

The signes of
foulenesse of
the bone.

Corrupt
bones are
sometimes
hard.

R. radie. treos, Flor. aristolochia an. ʒj. *centaur.* ʒij. *corticis pini* ʒss. *Misce & fiat pulvis subtilissimus ossis inspergendus*. But if it be much corrupted, it must bee scraped forth with your Scalpra. And you must expect the falling or scalling of the corrupt bone from the sound, and not forcibly procure it; for otherwise the sound bone, which lyes under it, being as yet covered with no flesh growing over it, would be corrupted by the appulse, or touch of the ayre. Yet you shall by little and little gently move and shake rotten bones with your probe, that so they may more easily scale and with lesse trouble to nature. But note by the way, that the scalling of the bone which hath environed the Trepan, is commonly performed in the space of fortie or fifty dayes. So long also will that caused by the unusuall appulse or touch of

of the aire, or application of a Cautey, or the asperſion of Cephalicke powders; beſides alſo in the ſame number of dayes broken bones may be united and joyned together by a *Callus*, which is to them as a ſcarre, yet ſometimes ſooner, ſomewhiles latter according to the variety of the ages, tempers and habits of divers men.

The benefit
of a vulnerary
potion.

But if the *Caries* or *Rottenes* can neither by theſe fore mentioned remedies be overcome and amended, neither the looſed continuity agglutinated nor united, you muſt give the patient a vulnerary potion, for hence I have found happy ſucceſſe in many. But ſometimes not onely a certaine portion of the bone, is taken with a *Caries*, but alſo the whole is often ſeazed upon with ſphacell, and all falls out. For in *Hippocrates* opinion, *Lib. de vulneribus capitis*, the bone of the ſcull being broken falls from the ſound more or leſſe, according to the violence of the blow; which alſo is confirmed by experience.

A Hiſtory.

For which purpoſe I thinke good in this place to recite a Hiſtory, whereof I was an eye witneſſe, whilt I ſerved as Chirurgion in *Piemont* under the Marſhal de *Monteſan* (who was the Kings Leiſtenant there.) It happened that a Lackey of *Monſieur de Goulaines* came to me to be cured; he had the *Bregma* bone of the left ſide broken with a ſword, neither yet did the fracture come to the ſecond Table; a few dayes after his recovery the bone being agglutinated and united, it came to paſſe that a company of *Gaſcoine* ſouldiers his countreimen came to *Turin*, with whom one morning he eate plentifully Tripe fryed with Onions and ſpices, & drunke a great quantity of ſtrong wine. Whereupon he preſently fell into a continuall Feaver, and loſt his ſpeech and underſtanding; his head ſwelled, his eyes looked red and fiery and as though they would have ſtarted out of his head. Which things being conſidered, I let him blood, having firſt (by the Phyſirions advice) given him a Giſter, and applyed to his head ſuch things as were fit, and alſo I laboured with Frictions and Ligatures of the extreame parts to draw the humors downewards; yet for all this the part of the head which was formerly affected began to impoſtumat; which being opened, there came forth a great quantity of matter, and at the length the muſculous ſkinne and *Pericranium* ſincking downe, both the Tables of the ſcull became putrified and rotten, as you might know by their blackneſſe and ſtench. Now to take away this corruption, I applyed at certaine times actuall cauterics, both to amend the corruption and ſeparate that which was altered: but marke, after ſome months ſpace, a great number of wormes came forth by the holes of the rotten bones from underneath the putrified ſcull; which moved me to haſten the ſeparation and falling away of the putrid bones. Which being done, upon the very *Craſſa Meninx*, which is more ſtrange, in that place which nature had covered with fleſh, I obſerved three cavities of the largeneſſe of ones thumbe filled with wormes about the bigneſſe of a points tagge, with blacke heads, diverſly wrapped amongſt themſelves. The bone which nature ſeparated was of the bigneſſe of the palme of ones hand, ſo that it was ſtrange that ſo large a portion of the ſcull ſhould bee caſt off by nature, and yet the patient not dye thereof; for he recovered yet beyond all mens expectation, but after the agglutination of the wound the ſcarre remained very hollow according to the decree of *Hippocrates*. For fleſh doth not eaſily grow upon a *Callus*, becauſe it is a thing ſtrange and ſuppoſitious by nature; beſides, as a ſcarre is a thing more denſe than the ſkinne, ſo is a *Callus* than the bone, ſo that through the more compact ſubſtance thereof, the blood can neither freely, nor plentifully ſweat through for matter to regenerate fleſh. Hence it is, that whereſoever any portion of the ſcull is wanting, you may there by putting too of your hand perceive and feele the beating of the Braine, wherefore the ſcull muſt needes bee much weaker in that place. Now to helpe this infirmity, I wiſhed this Lackey to weare a Cap made of thicke leather, ſo more eaſily to withſtand externall injuries, and verily thereby he grew much better.

A great falling
away of a corrupt
rupt bone.

Aph. 45. Sect. 6

The covetous
craft of im-
poſtors.

Now I thinke good in this place to lay open the deceite and craft of ſome Impoſtors falſly ſtiling themſelves Chirurgions, who when they are called to cure wounds of the head, wherein any part of the ſcull is loſt, perſwade the patient and his friends, that they muſt put a plate of gold in the place of the ſcull which is wanting. Wherefore they hammer it, in the preſence of the patient, and turne it divers wayes and apply

apply it to the part, the better to fit it; but presently after they sliely convey it into their purses, and so leave the patient thus cosened. Others bragge that they are able to put the dried rinde of a gourd into the place of the lost bone, and fasten it on to defend the part; and thus they grossely abuse those which are ignorant in the Art. For this is to farre from being done that nature will not suffer nor endure so much as an haire, or any other small body to be shut up in a wound when it is cicatrized; neither is the reason alike of a leaden bullet which shot into the body lyes there for many yeeres without any harme to the patient; for although lead have a certaine familiarity with mans body, yet is it at length (unlesse the density of the opposed flesh, ligament, tendon, or some other such like substance hinder) thrust forth by nature impatient of all strange bodies. And thus much of the rottenesse and corruption of fractured bones; now must we speake of the discommodities which befall the *Meninges* by wounds whereby the scull is broken.

CHAP. XXI.

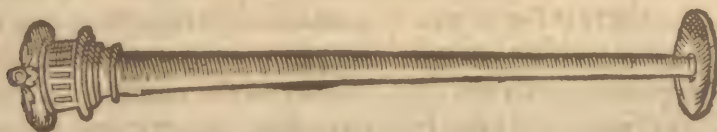
Of the discommodities which happen to the *Crasa Meninx* by fractures of the scull.

MAny discommodities chiefly happen to the *Crasa Meninx* by a fracture of the scull and rash Trepaning thereof; for it sometimes chanceth to be cut and torne. Agglutination is a remedy for this disease, which *Hippocrates* wishes to be procured with the juice of *Nepeta* [that is, of that calamint, which smells like Penny-royall] mixed with barley floure. In steed whereof this following powder having the like faculty may take place.

R. Colophon. ʒiij. Myrrha, aloes, mastiches, sanguinis Dracon. an. ʒj. croci, sarcocelle an. ʒʒ. misce & fiat pulvis subtilis. But to purge the blood and matter which is gathered and lyes betweene the *Crasa Meninx* and scull, you shall put in a Tent made of a ragge twined up some foure or five double, and steeped in syrupe of Roses or wormewood and a little *aqua vita*; for thus you shall presse downe both the *Crasa Meninx*, left lifted up by the accustomed and native pulsation of the braine, it should be hurt by the edges of the scull yet rough by reason of the sharpe splinters of the bone lately Trepaned, and give freer passage forth for the matter there contained. But as oft as you shall dresse the patient, you shall renew the forementioned Tent, untill all the matter be purged forth. And so often also you shall presse downe with the following instrument the *Dura Mater*, and bid the patient to strive to put forth his breath, stopping his mouth and nose, that so the matter may more easily be evacuated. This Instrument wherewith you shall hold downe the *Dura Mater*, must have the end round, polisht and smooth as it is here exprest.

Remedies for
the lacerated
Meninx.

A fit Instrument to presse and hold downe the *Dura Mater*, so to make way for the passage forth of the Sanies or Matter.



And let there be layd upon the *Dura Mater* strewed over with the formerly mentioned powder, a sponge moystened and wrung forth of a drying decoction made of aromaticke and cephalicke things, such as this which followes.

R. Fol. salvia, majoran. betonica, rosar. rub. absinth. Myrtil. florum chamem. melil. stachad. utriusque an. M. iij. ʒ. rad. cyperi, calam. aromaticos, caryophyllata; angelica, an. ʒʒ. bullians omnia secundum artem cum aqua fabrorum & vino rubro, fiat decoctio ad usum dictum. And in stead hereof you may use claret with a little *aqua vita*, that so the conteyned matter may be evacuated and dried up. A sponge is fitter for this purpose to draw than a linnen ragge or any other thing, both because it is good of its selfe to draw forth the humidity, as also for that by its softnesse it

A sponge fit
to foment
withall.

Lib. de Vuln. cap. yeelds to the pulsation of the Braine. Then apply to the wound and all the adjoining parts, an emplaster of *Diacalcitheos* dissolved with vinegar, or wine, or oyle of Roses, that so the plaster may be the more cold and soft. For in *Hippocrates* opinion, nothing which is any thing hevie or hard must be applyed to wounds of the head, neither must it be bound with too strait, or hard a ligature, for feare of paine and inflammation.

Lib. de fascijs. For *Galen* tells (as he had it from *Mantias*) that a certaine man lost his eyes by inflammation and impostumation arising, for that an Apothecarie had used too strait a ligature to his head and face; for this strait ligature so pressed the sutures, that the fuliginous vapours, which used to passe through them and the pores of the scull, were stopped from passing that way; besides, the beating of the Arteries was intercepted and hindred; by which meanes the paine and inflammation so encreased, that his eyes were rent and broke in sunder and fell forth of their orbe.

The discommodities of too strait binding of the head. Wherefore *Hippocrates* rightly commends an indifferent ligature, also hee fitly wisheth us to let the emplaisters bee soft which are applyed to the head, as also the cloathes wherewith it is bound up, to bee of soft and thinne linnen, or of Cotton, or wooll. When the patient is in dressing, if there come much matter out of the wound, you shall wish him if hee can, to lye upon the wound, and now and then by fits to strive to breathe, stopping his mouth and nose, that so the braine lifted and swollne upwards, the matter may bee the more readily cast forth; otherwise suffer him to lye so in his bed, as he shall best like of, and shal be least troublesome to him.

What cloathes we must use. You may with good successe put upon the *Crassa Meninx* oyle of Turpentine with a small quantity of *aqua vita* and a little Aloes and Saffron finely powdred, to cleanse or draw forth the *Sanies*, or matter. Or else,

How the patient must lye in his bed. *R. Mellis rosar. ʒij. farine hord. pulver. aloes, Mastich. & Ireos Florent. an. ʒʒ. aqua vita parum;* let them be incorporated together and make a deterfive medicine for the foresayd use.

Paulus lib. 6. cap. 90. Sometimes also the *Crassa Meninx* is inflamed after Trepaning, and swolne by a *Phlegmon*, that impatient of its place, it rises out of the hole made by the Trepan, and lifts its selfe much higher than the scull, whence greivous symptomes follow. Wherefore to prevent death, of which then wee ought to bee afraid, wee must enlarge the former hole with our cutting mullets, that the matter contained under the scull, by reason of whose quantity the membraine swells, may the more freely breathe and passe forth; and then we must goe about by the prescript of the Physicians to let him bleed againe, to purge and diet him. The inflammation shall bee resisted by the application of contrary remedies, as this following fomentation.

Remedies for the inflammation of the Crassa Meninx. *R. Sem. lini, althe, san. psilly, ros. rub. an. ʒj. solani, plantag. an. M. j. bulliant in aqua tepida communi, ex qua fiat fotus.* Anodyne and repelling medicines shall bee dropped into his eares; when it is exceedingly swolne, that the tumor may subside, you shall cast upon it the meale or floure of lentills, or vine leaves beaten with Goose grease. With all which remedies if the tumor doe not vanish, and withall you conjecture that there is Pus or matter contained therein, then you must open the *Dura Mater* with your incision knife, holding the point upwards and ourwards, for so the matter will be poured forth and the substance of the braine not hurt nor touched. Many other Chirurgions, and I my selfe have done this in many patients with various successe.

How we must open the Crassa Meninx when it is impostumate. For it is better in desperate causes to try a doubtfull remedy than none at all; also it oft times happens whither by the violence of the contusion and blow, or concretion or clotting of the blood which is shed, or the appulse of the cold ayre, or the rash application of medicines agreeing neither in temper nor complexion with the *Crassa Meninx*, or also by the putrifaction of the proper substance, that the *Dura Mater* it selfe becomes blacke. Of which symptome the Chirurgeon must have a great and speciall care.

The causes and remedies of the blacknesse of the Dura Mater. Therefore that thou mayst take away the blacknesse, caused by the vehemencie of the contusion, you shall put upon it oyle of egges with a little *Aqua Vita*, and

Remedies for contusion.

and a small quantity of Saffron and Orris roots in fine powder; you shall also make a fomentation of discussing and aromaticke things boiled in water and wine; and *Vigoes* Cerat formerly described shall bee applyed. But if the harme come from congealed blood, you shall withstand it with this following remedie.

R Aqua Vita ℥ij. *granor. tinctorum in tenuempulverem tritorum* ℥iij. *croci* ℥i. *Mellis rosat.* ℥ij. *sarcocol.* ℥ij. *Leviter & simul bulliant omnia, & de colatura infundatur, quousque nigrities fuerit oblitterata.* If this affect come by the touch of the ayre, it shall bee helped with this following remedie.

R Tereb. ven. ℥ij. *Mellis ros.* ℥ij. *Vuclum ovi unum, farin. hordei* ℥ij. *croci.* ℥j. *sarcocol.* ℥ij. *aq. vita* ℥ij. *Incorporentur simul, & bulliant paululum.* This remedie shall be used untill the blacknesse be taken away, and the membrane recover its pristine colour.

But if this affect proceedes from the rash use of medicines, it must bee helped by application of things contrary. For thus the offence cauted by the too long use of moyst and oyley medicines, maybe amended by using catagmaticke & cephalick powders; but the heate and biting of acride medicines, shall be mitigated by the contrary use of gentle things; for both humide and acride things somewhat long used make the part looke blacke; that truely by generating and heaping up filth, but this by the burning and hardening heate. But when such blacknesse proceedes from putrefaction, *Iohn de Vigo* commends the following remedie.

R aqua vita ℥ij. *mellis rosat.* ℥ij. But if the affect be growne so contumacious that it will not yeeld to this gentle remedie, then this following will bee convenient.

R Aq. vita ℥ij. *mellis ros.* ℥j. *pulver. Mercur.* ℥ij. *unica ebullitione bulliant simul ad usum dictum.* Or *R aqua vit.* ℥ij. *syrup. absinth & mellis rosat. an.* ℥ij. *unguenti aegyptiaci* ℥ij. *sarcocol. myrrha, aloes, an.* ℥j. *vin. albi boni & odoriferi,* ℥j. *bulliant leviter omnia simul, colentur ad usum dictum.* But if the force of the putrefaction be so stubborne, that it will not yeeld to these remedies, it will be helped with *Aegyptiacum* (made with plantaine water in steed of Vinegar) used alone by its selfe, or with the powder of Mercury alone by it selfe, or mixt with the powder of Alome. Neither must we bee afraid to use such remedies especially in this extreame disease of the *Dura Mater*; for in *Galens* opinion the *Crassa Meninx* after the scull is Trepaned delights in medicines that are acride, that is, strong and very drying, especially if it have no *Phlegmon*; and this for two reasons; the first is, for that hard and dry bodies, such as membranous bodies are, be not easily affected unlesse by strong medicines; the other is, which must be the chiefe and prime care of the Physitian, to preserve and restore the native temper of the part by things of like temper to it. But if the auditory passage not onely reaching to the hard membranes of the Braine, but also touching the Nerve which descends into it from the braine, suffer most vehement medicines, though it be placed so neere; certainly the *Crassa Meninx* will endure them farre more easily and without harme.

But if by these meanes the putrefaction be not restrained, and the tumor bee encreased so much, that the *Dura Mater* rising farre above the scull, remains unmoveable, blacke and dry, and the patients eyes looke fiery, stand forth of his head and rowle up and downe with unquietnesse and a phrensie, and these so many ill accidents be not fugitive, but constant; then know that death is at hand, both by reason of the corruption of the gangraene of a noble part, as also by extinction of the native heate.

For congealed blood.

For the hurt received by the ayre.

What medicines make the *Crassa Meninx* blacke.

Medicines as gainst that putrefaction of the *Meninx*.

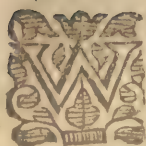
Why the *Crassa Meninx* easily endures acrid medicines.

Signes of death at hand.

CHAP. XXII.

Of the cure of the Braine being shaken, or moved.

What the
concussion of
the braine is,



We have formerly declared the causes, signes and symptomes of the concussion, or shaking of the Braine, without any wound of the musculous skinne, or fracture of the bone; wherefore for the present I will treat of the cure.

Therefore in this case, for that there is feare that some vessell is broken under the scull, it is fit presently to open the cephalicke veine. And let blood be plentifully taken according to the strength of the patient, as also respectively to the disease both which is present, and like to ensue, taking the advice of a Physitian.

The opening
of the Vena
Puppis.

Then when you have shaven away the haire, you shall apply to the whole head and often renew the forementioned cataplasme, *Ex farinis, oleo rosaceo, oxymelle*, and other like cold and moist repelling medicines. But you must chew dry, and too astringent medicines must be shunned, such as are *Vnguentum de bolo* and the like; for they obstruct too vehemently, and hinder the passage forth of the vapours both by the futures and the hidden pores of the scull. Wherefore they doe not onely not hinder the inflammation, but fetch it when it is absent, or encrease it, when present. The belly shall be loosed with a glistre, and the acride vapours drawne from the head; for which purpose also it will be good, to make frictions from above downwards, to make straight ligatures on the extreame parts, to fasten large cupping-glasses with much flame to the shoulders and the originall of the spinall marrow, that so the revulsion of the blood running violently upwards to the braine, and ready to cause a phlegmon, may be the greater. The following day it will be convenient to open the *Vena Puppis*, which is seated upon the Lambdall suture, by reason of the community it hath with the veines of the braine, and shutting the mouth and nose to strive powerfully to breathe. For thus the membranes swell up, and the blood gathered betweene them and the scull is thrust forth, but not that which is shut up in the braine and membranes, of which if there be any great quantity, the case is almost desperate, unlesse nature assisted with stronger force, cast it forth turned into Pus. But also after a few dayes the *vena frontis* or forehead veine may be opened, as also the Temporall Arteries and Veins under the tongue, that the conjunct matter may be drawne forth by so many open passages.

In the meane spare the Patient must keepe a spare diet, and abstaine from wine, especially untill the fourteenth day, for that untill that time the fearefull symptomes commonly reigne. But repelling medicines must be used untill the fourteenth day be past, then we must come to discussing medicines, beginning with the more milde, such as is this following decoction.

A discussing
fomentation.

R. rad. Alth. ʒvj. ireos, cyperi, calami arom. an. ʒij. fol. salvia, Majoran, betonic. flor. chamem. melil. ros. rub. stachad. an. M. S. salis com. ʒiij. bulliant omnia simul secundum artem cum vino rub. & aqua fabrorum, fiat decoctio. Let the head be washed

A caution in
fomenting the
head.

therewith twise a day with a sponge. But yet when you doe this, see that the head be not too much heated by such a fomentation, or any such like thing, for feare of paine and inflammation.

Then you shall apply the cerate of *Vigo* which hath power to discusse indifferently, to dry, and draw forth the humors which are under the scull, and by its aromaticke force and power to confirme and strengthen the braine; it is thus described.

A description
of Vigoes
Cerate.

R. Furfuris bene trituriati ʒiij. farin. lentium ʒij. ros. myrtillor. foliorum & granorum ejus, an. ʒj. calam. aromat. ʒiij. chamamel. melil. an. M. S. nucs cupressi num. vj. olei rosacei, & chamem. an. ʒiij. cera alba ʒiij. thuris, mastichis, an. ʒiij. myrrha ʒij. In pulverem qua reatgi debent redactis, & liquefactis oleis cum cera,
omnia

omnia misceantur simul, & fiat mixtura, quæ erit inter formam emplastri & ceroti.

Vigo saith, that one of the Duke of *Urbins* Gentlemen found the virtue hereof A History. to his great good. Hee fell from his horse with his head downwards upon hard Marble, he lay as if hee had beene dead, the blood gusht out of his nose, mouth and eares, and all his face was swollen and of a livide colour; hee remained dumbe twenty dayes, taking no meat but dissolved gellies, and Chicken, and Capon broths with sugar; yet he recovered, but lost his memorie, and faultered in his speech all his life after. To which purpose is that Aphorisme of *Hippocrates*; Those which have their Braine shaken by what cause soever, must of necessity become dumbe; yea also, as *Galen* observes in his commentary, loole both their sense and motion. That Cerat is not of small efficacie, but of marvellous and admirable force, which could hinder the generating of an absesse, which was incident to the braine by reason of the fall. Aph. 58. sect. 7.

Yet there be many men so farre from yeelding to reason, that they stily denie, that any impostumation can be in the braine, and augmenting this errour with another, they deny that anywho have a portion of the braine cut off can recover, or rise againe; but the authority of ancient writers and experience doe abundantly refell the vanitie of the reasons whereon they relye. Now for the first in the opinion of *Hippocrates*; If those which have great paine in their heads have either pus, water or blood flowing from their Nose, mouth or eares, it helps their disease. That there may be an absesse in the braine.

But *Galen*, *Rhasis* and *Avicen* affirme that Sanies generated in the braine disburdens its selfe by the nose, mouth or eares; and I my selfe have observed many who had the like happen to them. Aph. 10. sect. 6.

I was told by *Prothais Coulem* Chirurgion to Monsieur de *Langey*, that he saw a certaine young man in the towne of *Mans*, who often used to ring a great bell; hee once hanging in sport upon the rope, was snatch up therewith and fell with his head full upon the pavement: he lay mute, was deprived of his senses and understanding, and was besides hard bound in his belly. Wherefore presently a feaver and delirium with other horrid symptoms assayed him, for he was not Trepaned because there appeared no signe of fracture in the skull: on the seaventh day hee fell into a great sweate with often sneesing, by the violence whereof a great quantity of matter and Pus flowed forth of his eares, mouth and nose, then hee was eased of all his symptoms, and recovered his health. Gal. lib. de inæqual. intemp. Rhaz. cap. 4. comment. Avicen. cap. de exit. fen. 3. lib. 4. cap. 20. A History.

Now for the second, *Galen* affirms that he saw a Boy in *Smirna* of *Ionia* that recovered of a great wound of the braine, but yet such an one as did not penetrate to any of the ventricles. Lib. 8. de. aff. part. 3. com. ad aph. 18. sect. 6.

But *Guido of Caulias* saith, he saw one which lived and recovered after a great portion of the braine fell out by reason of a wound received on the hind part of his head.

In the year of our Lord 1538. while I was Chirurgion to the Marshall of *Montejan* at *Turin*, I had one of his Pages in cure, who playing at quoites received a wound with a stone upon the right *Bregma* with a fracture, and so great an effraction of the bone, that the quantity of halfe a hassell Nut of the braine came forth thereat. Which I observing, presently pronounced the wound to bee deadly; a Physition which was present contradicted my opinion, affirming that substance was no portion of the braine, but a certaine fatty body. But I with reason and experience in presence of a great company of Gentlemen, convinced the pertinacie of the Man; with reason; for that fat cannot be generated under the skull, for although the parts there contained be cold, yet because they are heated by the abundance of the most hot and subtle animall spirits, and the heate of vapours rising thither from all the body, they doe not suffer fat to concreate about them. But with experience, for that in the dissecting of dead bodies, there was never any fat observed there; besides also fat will swimme on the top of water; but this substance as marrowie, cast into the water presently sunke to the bottome. Why fat cannot be generated under the skull.

Lastly, fat put to the fire becomes liquide and melts; but this substance being layd upon a hot Iron, became dry, shrunke up and contracted it selfe like a peece of leather; but dissolved not at all. Wherefore all those which were present cried out, that my judgement was right of that substance that came forth of the skull. Yet Signes of a fatty substance.

though it was cut away, Page recovered perfectly, but that he continued deafe all his life after.

CHAP. XXIII.

Of the wounds of the face.

Why we treat
in particular
of wounds of
the face.



Having treated of the wounds of the head by their causes, signes and cure, it followes that we now speake of the wounds of the face, if but for this, that when they are carelessly handled, they leave deformed scarres in the most specious and beautifull part of the body. The causes are the same which are incident to the scull, that is, externall. But this may bee added to the kindes and differences of the wounds, that the life may be out of danger though any one whole part of the face, (as the eare, eye, nose, lippe) may bee cut away by a wound, but not so in the head or scull. Wherefore beginning at the wounds of the eye browes, wee will prosecute in order the wounds of the other parts of the face.

A thing to be
observed in
wounds of the
eyebrowes.

This is chiefly to bee observed in wounds of the eye-browes, that they are oftentimes cut so overthwart, that the muscles, and fleshy pannicle which moove and lift them up, are wholly rent and torne. In which case the eye liddes cannot be opened, and the eyes remaine covered, and as it were shut up in the cases of their lids; so that even after the agglutination of the wound, if the patient would looke upon any thing, he is forc'd to hold up the eye-lids with his hand; with which infirmity I have seene many troubled, yet oft times not so much by the violence of the wound, as by the unskilfulnesse of the Chirurgion who cured them; that is, by the negligent application of boulders, an unfit ligature and more unfit suture. In this case the skillfull Chirurgion which is called to the patient shall cut off as much of the skinne and fleshy pannicle as shall serve the eyelids, that so they may by their owne strength holde and keepe open, without the helpe of the hand: then he shall sow the wound as is fit, with such a stitch as the Furriers, and Glovers use; and then he shall poure thereon some of the balsome of my description, and shall lay such a medicine to the neighbouring parts.

R Olee rosar. 3℔. album. ower. nu. ij. boli armeni, sanguinis Dracon. Mastich. an 3j. agitentur simul, fiat medicamentum. Then let the part be bound with a fitting ligature. Afterwards you shall use *Emplast. de gratia Dei, Empl. de Betonica, Diacalcitheos*, or some other like, untill the wound be cicatrized. But such like and all other wounds of the face may be easily healed, unlesse they either bee associated with some maligne symptomes, or the patient body be replete with ill humors.

Lagophthalmia
is a quite con-
trary to the
falling downe
of the eye-
lids.

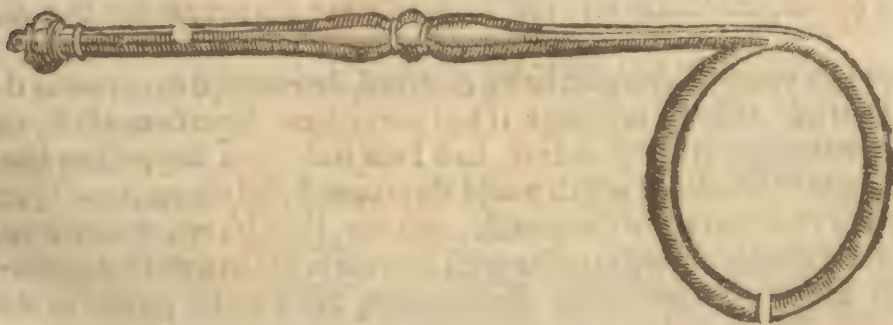
There sometimes happens a quite contrary accident in wounds of the eye-browes, that is, when the eye-lids stand so up that the patient is forc'd to sleepe with his eyes open, wherefore those which are so affected are called by the Greeks *Lagophthalmi*. The cause of this affect is often internall, as a carbuncle or other kinde of abscesse, as a blow or stroake. It shall be cured by a crooked or semicircular incision made above the eye-liddes, but so that the extreames of the semicircle bend downewards, that they may be pressed downe and ioyned as much as is needefull to amend the stiffness of the eye-lidde. But you must not violate the gristle with your Instrument, for so they could no more be lifted up; the residue of the cure must bee performed as is fit.

CHAP. XXIII.

Of the wounds of the eyes.

Wounds of the eyes are made by the violence of things prickings cutting, bruising, or otherwise loosing the continuity. But the cure must alwayes be varied according to the variety of the causes and differences. The first head of the cure is, that if any strange and heterogeneous body shall be fallen into the eyes, let it be taken forth as soone as you can, lifting and turning up the eyelid with the end of a spatula. But if you cannot discern this moate or little body, then put three or foure seedes of *Clary*, or *Oculus Christi* into the pained eye. For these seedes are thought to have a faculty to cleanse the eyes and take out the moats, which are not fastned deepe in, nor doe too stubbornly adhere to the membranes. For in this case, you shall use this following instrument, for heerewith wee open the eyelids the further, putting it betweene them and the eye, and also keepe the eye stiddy by gently pressing it, that so with our mullets wee may pull out the extraneous body; this is the figure of such an Instrument.

The deliniation of a Speculum oculi, fit to dilate and hold asunder the eyelids, and keepe the eye stiddy; it is so made, that it may be dilated and contracted according to the greatnesse of the eyes.



All strange bodies taken out, let this medicine be put into the eye. Take the straines of a dozen egges, let them be beaten in a lead Mortar with a little Rose water, and so put into the eye; but let this repercussive be layd upon the eye and the neighbouring parts. *℞. albumen ovor. nu. iiii. pulver. aluminis roche combusti ʒij. sanguinis Draconis ʒj. aque rosar. & plantag. an. ʒij. agitentur simul,* make a repercussive, which you may frequently use. Or else apply cheese curds well wrung, mixed with Rosewater, the white of an Egge, and as much *acacia* as shall suffice. This which followeth doth more powerfully stay the flowing humor. *℞. gum arab. & tragac. an. ʒij. psilij. cydon. semin. portul. plant. sumach. an. ʒij. fiat mucag. cum aqua plantag. solan. & rosar. concinnetur collyrium,* of which you may drop some both within and about the eye.

A repercussive to be put into the eye.

Divers repercussives to be applied to the eye.

But note, that all such remedies must be applyed warme, both that they may the better penetrate by their moderate heate, as also for that all actually cold things are hurtfull to the eyes and sight, because they dull the sight by incrusting the visive spirits. For I have knowne many who have become dull of sight by the frequent using of medicines actually cold to the eyes.

Things actually cold are hurtfull to the eyes.

I have on the contrary seene not a few, who have recovered with the fit use of such like medicines, who have had any part of their eye (so it were not the *pupilla* or Apple of the eye) so pricked with a needle or bodkin, that much of the watrish humour ran forth thereat.

The milke of a woman which suckles a girle (for that is reputed the cooler) mitigates paine and cleanses, if it bee milked out of the Dug into the eye; to which purpose also the blood of Turtles, Pidgeons or Chickens much conduces, being dropt into the eye by opening a veine under their wings. Also this following cataplasme asswageth paine and inflammation, and hinders defluxion, being applyed to the eye

A nodyne medicines for the eyes.

and the adjacent parts. *R Carnis pomorum sub cinere calido decoctorum* ℥v. vitellos ovorum num. iij, cassia fistula recentier extracta ℥℔, mucaginis psilij, althea & cydon. an. ℥j. farin. hordei parum, incorporentur omnia simul, fiat cataplasma.

Narcotickes.

Also sheepes lungs boyled in milke and applyed warme, and changed as they grow cold, are good to aswage paine. But if the too violent heate and paine shall not yeeld to such medicines, but require more vehement, then *Foliorum Hyoscyami*, m. j. sub cineribus coquatur, atque in mortario cum mucagine seminis psilij, & cydonior, extract. in aquis solani & plantag. pistetur: then let this medicine be wrapped in a linnen cloath and applyed to the eyes and temples. The mucilages of *Psilium*, or Flea-wort, and Quince seedes extracted in a decoction of Poppy heads and mixed with a little *Opium* and Rose water, are used for the same purpose. But when there is neede of detergent and sarcoticke medicines, then *R Syrup. rosar. siccar.* ℥j. aq. fenic. & ruta an. ℥ij, aloes lota, olibani an. ℥℔. mixe them for the foresayd ule. The galls of Scates, Hares, and Partridges dissolved in eye-bright and fennell water, are fit for cleansing such wounds; as also this following *Collyrium*.

Detergent medicines.

R Aqua hordei ℥j. mellis despumati ℥iij. aloes ter lota in aqua plantaginis and sacchari cand. an. ℥j. fiat collyrium. Also this ensuing medicine is very sarcoticke.

A sarcoticke medicine for the eyes.

R mucagin. gummi olibani, arabici, tragacanth. & sarcocol. in aq. hordei extract. an. ℥iij, aloes ter lota in aq. rosarum ℥j. cerus. usta & lota, tutia prepar. an. ℥℔ fiat collyrium.

But here you must note, that the coate *Adnata* often twells so much by reason of a wound or some other injurie, and stands so forth by the falling downe of humores, accesse and mixture of flatulencies, that it hides the whole *Pupilla*, and hangs forth of the eye-lids, like as if it were an unnaturall fleshy excrescence, and it looses the native colour, and lookes very red; so that the eye can neither bee shut nor opened.

Wherewith a young Chirurgion being deceived, determined to cut away this protuberancie of the *Adnata*, as though it had beene some superfluous flesh, and then to waste it with catharteticke powders, had I not forbidden him, telling him of the certaine danger of blindness which would thereupon befall the patient. Wherefore I prescribed a fomentation of chamomile, melilote, Rose leaves, wormewood, rue, fennell, and aniseedes boyled in milke with the rootes of Orris and marigolds. Then I presently added this following fomentation, being more powerfull and drying.

A drying fomentation.

R Nucis cupressi, gallar. balaust. an. ℥j. plantag. absinth. hippuris, flo. chemam. ros. rub. an. M. B. bulliant simul cum aqua fabrorum, & fiat decoctum pro fotu cum spongia.

Besides also you may apply a cataplasme made of barley and beane flowre, the powders of Masticke, Mirrhe, and Aloes, and some of the last described decoction. The tumor beginning to decline; I drop the flowing liquor into the eye, which hath a very astringent, drying and strengthening faculty.

Roast a new layd egge in Embers untill it be hard, then pill off the shell, take forth the yolke, and in place thereof put a scruple of Roman Vitrioll in fine powder, then put it in a linnen cloath and wring it hard forth into some cleane thing, and droppe thereof for some dayes into the eye, with a little smithes water wherein Sumach and Rose leaves have beene boyled. I have found by experience the certaine force of this remedy; but if notwithstanding there be a true fleshy excrescence upon the coate *Adnata*, it may be taken away by this following powder.

A medicine to consume a fleshy excrescence without bistring.

R Ossis sepiæ & testa ovorum calcinata an. ℥j, fiat pulvis. Calcined Vitriole, burnt Aloes and the like may bee commodiously used to this purpose. Yet you must warily make use of all such things, and alwayes lay repercussives about the eye, that no harme ensue thereof.

For diverse times acride humors fall downe into the eye with such violence, that they breake the Horny coate, whereupon the humors of the eye are poured out. Remember also, that in diseales of the eyes, the Patient lye with his head somewhat high, and that he keepe shut not only the pained, but also the sound eye, because rest is alwayes necessary for the grieved part. But one eye cannot bee moved without some motion of the other by reason of the connexion they have by their opticke and moving nerves, both the *Meninges*, the *Pericranium*, Veines, and Arteries; which is the

the cause that when the one suffers, the other in some sort partakes therewith.

But if we cannot prevaile by all these formerly prescribed medicines fit to stay the defluxion, then it remaines, that wee apply a Seton to the necke; for it is a singular remedy against inveterate defluxions into the eyes. For we know by dayly experience, that many who have had their sight dulled by a long and great defluxion, so that they were almost blinde, have by little and little recovered their former splendour and sharpnesse of sight, when matter once begun to bee evacuated by the Seton.

A Seton a good remedy against inveterate defluxions into the eyes.

The truth hereof appeared in *Paul* the Italian Goldsmith, who dwelt neere the *Austine Friars*. For he having used many medicines of diverse Physicians, and Chirurgeons in vaine, when he was almost blinde, he applying a Seton, by mine advice, began by little and little to see better according to the quantity of the matter which was evacuated, untill at length he perfectly recovered his sight. But at last growing wearie of the Seton which he had worne for a yeere (although matter came dayly forth thereof) yet he would have it taken forth, and healed up; but this way of evacuation being shut up, and the humor againe beginning to flow into his eyes, so that he was in danger to become blinde, hee called me and made me againe to apply the Seton in his necke. Whereby recovering his former soundnesse and perfection of sight, he yet weares the Seton.

A History.

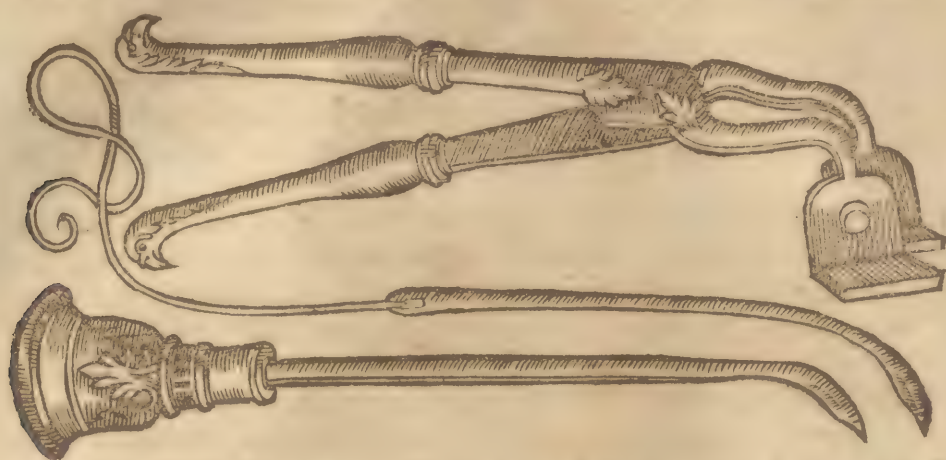
I also once freed by this kinde of remedy, by the appointment of the most learned Physician *Hollerius*, a certaine young man of twenty yeeres old, from the falling sicknesse, who before had many fits thereof, the Ichorous humors the feeders of this disease being by this meanes, as it is most probable, drawne away and evacuated.

A Seton good against the falling sicknesse.

Wherefore seeing a Seton is of this use, I have thought good in this place to set downe in writing and by figure, the manner of making thereof, for the behoofe of young practitioners. With the patient to sit on a low stoole, and to bend downe his head, that so the skinne and fleshy pannicle may be relaxed; then must you with your fingers plucke up and sever the skinne from the muscles, and take hold of as much hereof as you can with your pincers, not touching the muscles of the necke for feare of a convulsion and other symptomes; you shall then twitch the skinne which is held in the pincers, most hard, when you shall thrust the hot Iron through the holes made in the midst of them; that also the nerves being so twitched, the dolorifick sense may the lesse come to the part. The wound must be made or burnt in long wayes and not wharting, that so the matters may be the better evacuated by the straight fibers. But the cautery or hot Iron must have a three or else a foure-square point and that sharpe, that so it may the more easily and speedily enter. Then keeping the pincers immovable, let him draw through the passage made by the cautery a needle thred with a three or foure doubled threed of Cotton [or rather a skeane of silke] moistned in the white of an egge and oyle of Roses; then after you have applyed pledgets dipped in the same medicine, binde up the part with a convenient ligature. The day following the necke must be annointed with oyle of Roses, and the pledgets dipped in the former medicine applyed for some dayes after. But it will bee convenient to moisten the Seton with a digestive made of the yolke of an Egge and oyle of Roses, untill the ulcer cast forth much matter; then you shall annoint the Cotton thred with this following remedie. *R. terebinthina ven. ℥iij. syrupi rosar. & absinthij an. ʒss. pulveris Ireos, diacrydij, agarici trochiscati, & Rhei, an. ʒss. incorporentur omnia simul & fiat medicamentum.* Which you shall use so long, as you intend to keepe open the ulcer. For it hath a facultie to draw the humors from the face, and cleanse without biting.

The manner of making a Seton.

A figure of the Pincers, actuall Cautey and Needle used in making a Seton.



I have found not long since by experience, that the apertion made with a long thicke Triangular needle of a good length liketo a large Pack-needle, is lesse painefull, than that which is performed with the actuall cautey, which I formerly mentioned. Wherefore I would advise the young Chirurgion, that hee no more use the foresayd actuall cauterie. I have here given you the figure of the Needle.

The Figure of a Triangular Needle.



CHAP. XXV.

Of Wounds of the Cheeke.

The use of a dry suture.

Being a wound of the cheeke seemes to require a future, it must have a dry suture (as they terme it) least that the scarre should become deformed. For that deformity is very greevous to many, as to women who are highly pleased with their beauties. Therefore you shall spread two peeces of new cloath of an indifferent finenesse, and proportionable bignesse with this ensuing medicine.

How to make a dry suture.

R. pulveris mastichini, sanguinis Draconis, thuris, farina volatilis, tragacantha contusa, gypsi, picis, sarcocolla an. ʒij. picis nigra ʒiſs. albumina ovorum quæ sufficiant, fiat medicamentum. Apply the peices of cloath spread with this on each side of the wound one, some fingers breadth asunder, and let it alone till it be hard dried to the skinne. Then you shall so draw them together with your needle and thred, that the flesh by their sticking may also follow, and bee mutually adjoyned, as you may see it here exprest. The wound shall be agglutinated by this meanes, together with the use of fit medicines, pledgets, ligatures. But all the ligatures and stayes which shall be used for that purpose must be fastened to the patients night-lappe.

A Suture fit for bare-lips.

The manner thereof.

But when the wound is great and deep, and the lips thereof are much distant the one from the other, there can be no use of such a dry suture. Wherefore you must use a three or foure square needle (that so it may the more readily and easily enter into the flesh) being thred with a waxed thred; and with this you must thrust through the lips of the wound, and leave the needle sticking in the wound, and then wrappe the thred to and againe over the ends thereof eight or ten times, just after that manner which women use to fasten a needle with thred in it, upon their sleeves, or Tailors to their hatts or capps, that they may not lose them.

The



The needle thus fastened, shall bee there untill the perfect agglutination of the wound; this kind of suture is used in the wounds of the lips, as also in hare-lips, for so we commonly call lips which are cleft from the first conformation in the wombe by the error of the forming faculty. But such a suture will helpe nothing to agglutination, if there lye or remaine any skin betweene the lips of the wound; Wherefore you shall cut away whatsoever thereof shall be there, other-wise you must expect no union. Other kinde of sutures are of no great use in wounds of these parts, for out of the necessity of eating and speaking, they are in perpetuall motion; wherefore a thrid would cut the flesh; for which reason you shall take up much flesh with such Needles mentioned in this last described kinde of Suture, as this following figure shewes.

What hare-lips are

The figure of the suture fit for cloven or Hare lips, as also the delineation of the Needle about whose ends the thrid is wrapped over and under, to and againe.



A History.

To this purpose I will recite a history, to the end, that if any such thing happen to come to your hands, you may doe the like. A certaine Galcoine in the battell at Saint Laurence had his upper jaw cut overthwart even to his mouth, to the great disfiguring of his face. The wound had many wormes in it, and stanke exceedingly, because he could get no Chirurgion untill three dayes after he was hurt. Wherefore I washed it with a decoction of wormewood, Aloes and a little *Egyptiacum*, both to kill the wormes, and to fetch away all the putride matter; I discussed the tumor with a dissolving fomentation and cataplasme, I joyned together the lippes of the wound with the last described future. But I applyed this following medicine to the whole part.

A decoction
good to wash
away putres-
faction.

A small hole
remaining af-
ter the cure of
great wounds.

R. Terebinth. veneta ℥vj. gummi elemi. ℥ij. pulveris boli armeni. san. drac. Mastiches, myrrha, aloes an. ʒss. incorporentur simul. fiat medicamentum. The wound was agglutinated within a few dayes, but that there remained a certaine little whole at the joyning of the lower jaw with the upper, wherein you could scarce put the head of a pienne; out whereof neverthelesse much serous and thinne moysture flowed, especially when he either ate or spake; which I have also observed in many others. But for staying of this watrish humidity I dropped *Aqua fortis* into the bottome of the ulcer, and divers times put therein a little of the powder of burnt vitriole. Thus by Gods grace he recovered and became whole.

CHAP. XXVI.

Of the wounds of the Nose.

How many
wayes the nose
may be hurt.



He Nose many wayes suffers solution of continuity; as by a wound, fracture and contusion, and it is sometimes battered and broken on the upper part; which when it happens, you shall restore the deprest bones to their native seat and figure, with the end of a *spatula* or fir sticke wrapped about with towe, cotton or a linnen ragge. Then with pledgets dipped in an astringent medicine composed *ex albumine ovi, mastich, bolo armeno, sanguine drac. & Alumineusto*, and applyed to the side of the nose, hee shall labour to strengthen the restored bones, and then binde them with a convenient ligature, which may not presse them too much, lest the nose should become flat, as it happens to many through the unskilfulnesse of Chirurgions. Then must you put little pipes into the nose-thrills, and these not exactly round, but somewhat flat and deprest, tyed to the night-cappe on each side with a thred, least they should fall out. By the helpe of these pipes the bones of the nose will be kept in their place, and there will be passage forth for the matter, and for inspiration and expiration. But if all the nose, or some portion thereof shall bee wholly cut off, wee must not hope to restore it.

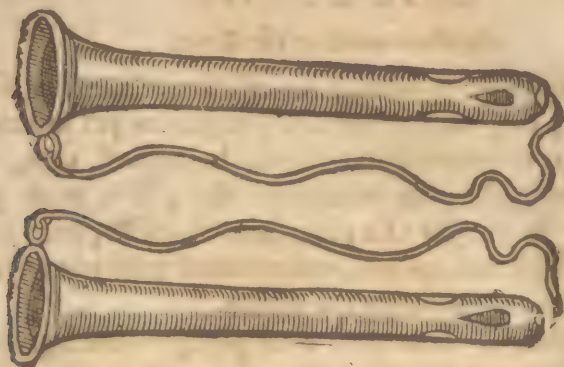
The cure of a
broken nose.

The use of
pipes in bro-
ken noses

But if the Nose bee so cut, that as yet it adheres to much of the adjacent flesh, from whence it may receive life and nourishment, then sow it up. For the lower part of the nose it may be shaken, deprest and wrested aside, seeing it is gristly; but it cannot be broken as the other which is of a bony nature.

The

The Figure of pipes to be put into the Nose-thrills.



CHAP. XXVII.

Of the Wounds of the tongue.



He tongue may bee so wounded, that either it may bee wholly cut off and deprived of some portion of the substance, or onely slit long wayes or atwhart. The losse of the substance cannot bee repaired, because every part separated and pluckt from the living body, from whence it had life, spirit and blood, presently dyes. For as the Philosophers say, *A privatione ad habitum non est regressus*. But when it is cut or slit longwayes or sidewayes, it is easily restored by suture, if so bee that the cloven part yet adhere to the living body from whence it may draw both matter and forme of life. Therefore a carefull servant shall straitly hold with a soft and cleane linnen cloth the body of the tongue, least it should slip away by reason of its slipperinesse, whilst the Chirurgeon stich it above and below; when he thinks hee hath sufficiently sowed it, let him cut off the threed as neere to the knot as he can, least being left too long it might bee tangled with the teeth as hee eates, and so cause a hurtfull laceration or tending of the sowed parts. In the meane time let the patient eate barly creames, almond milkes, Gelleyes, cullisses and broathes, and the yolkes of egges; and let him often hold in his mouth Sugar of Roses and syrupe of Quinces; for such things besides their nourishing faculty, performe the part of an agglutinating and detergent medicine.

How many wayes the continuity of the tongue may be loosed.

The cure of a cloven tongue.

I have learned these things I have here set downe, neither from my Masters whom I have heard with attention, nor by reading of bookes, but they have beene such as I have tryed with happy successe in many; as in the sonne of Monsieur de Marigny president of the Inquisition, in John Piet a Carpenter dwelling in the suburbs of Saint German.

But most apparently in a child of three yeeres old, the sonne of the great Lawyer Monsieur Conet, who fell with his chin upon a stone, and so cut off a large peece of the end of his tongue, which chanced to be betweene his teeth, it hung but at a very small fiber of flesh, so that I had very little or no hope to agglutinate and unite it, which thing almost made me to plucke it quit away; yet I changed that determination by considering the losse of the most noble action of speaking, which would thereupon enlue, and weighing the providence of nature often working wonders and such things as exceed the expectation of the physition in curing diseases.

A History.

I also thought thus with my selfe, the flesh of the tongue is soft, loose, fungous and spungie, neither is it altogether obvious to the externall injuries of the ayre; wherefore after that I had once or twice thrust through the needle and threed upwards and downwards, and for the rest ordered the child to be used and dieted after the

Nature of doth strange things in the cures of diseases.

manner I lately mentioned, he grew well within a short time, and yet remains so, speaking well and distinctly.

CHAP. XXVIII.

Of the Wounds of the Eares.

How many
wayes the unity
of eares
may be violat-
ed.
How to sew a
wounded
Eare.



He eares are sometimes wholly cut off, sometimes but in part, otherwhiles they are onely slit, so that the rent portion as yet adhearing to the rest, is joyned with it in communion of life. In this last case it is fit to use a suture; but yet so that you touch not the gristle with your needle; for thence there would be in danger of a gangrene which happens to many by foolish curing; therefore you shall take up and comprehend with your needle only the skin, and that little flesh which encompasses the gristle.

You shall performe the rest of the cure with pledgets and ligatures artificially fitted, and shall resist inflammation and other symptomes with fit medicines. But you must take speciall care that no superfluous flesh grow in the auditory passage, which may hinder the hearing; wherefore you shall keepe that passage free by stopping it with a peece of sponge. But you shall procure agglutination and consolidation of the gristly part (and therefore next to a bone most dry) with dry medicines. But those who have their eares quire cut off, can doe nothing but hide the deformity of their misse-hap with a cap, stuffed with Cotton on that side.

CHAP. XXIX.

Of the Wounds of the necke and throate.

The differ-
ences of wounds
of the necke
and throate.



He Wounds of the necke and throate are somewhiles simple, as those which onely use the continuity of the muscles; other whiles compound, such as those which have conjoynd with them a fracture of the bones, as of the *Vertebra*, or hurt of the internall and externall jugular Veines, or sleepey Arteries; sometimes the *Trachea Arteria*, or Weazon, and the *oesophagus* or gullet are wounded; sometimes wholly cut off, whence present death ensues. Wherefore let not the Chirurgion meddle with such wounds, unlesse he first foretell the danger of death, or the losse of some motion to those that are present. For it often happens that some notable nerve or tendon is violated by a wound in the necke, whence a palsey ensues, and that absolutely incurable, if the wound shall penetrate to the spinall marrow, also hurt therewith. Wounds of the gullet and Weazon are difficultly cured because they are in perpetuall motion; and chieflly of the latter by reason it is gristly and without blood. The wounds of the gullet are knowne, by spitting of blood, by the breaking forth of meate and drinke by the wound; but if the gullet be quite cut asunder, the patient cannot swallow at all. For the cut parts are both contracted in themselves, the one upwards, and the other downewards. But we know the weazon is hurt, by casting up blood at the mouth with a continuall cough, and by the comming forth of the breath or winde by the Wound. The Wounds of the jugular Veines and sleepey Arteries, if they be great, are usually deadly, because they cannot bee straitely bound up; for you cannot binde the throate hard without danger of choaking or strangling the patient. But for defect of a strait ligature in this case the fluxe of blood prooves deadly. If the recurrent Nerve of either side be cut, it makes the voyce hoarse; if cut on both sides, it takes away the use of speech, by hurting these instruments which impart motion to the muscles of the *Larynx*. For the cure if the wound be small, & not associated with the hurt of any notable vessel, nor of the Weazon and gullet, it is speedily and easily cured; and if there shall be neede you shall use a suture, then you shall put therein a sufficient quantity of Venice Turpentine mixed with bole-Armenicke; or else some of my Balsame of which this is the receipt. *R. Terebinth. veneta lb ss. gum. elemi ℥iiij. olei hypericonis ℥iiij. boli armeni, & sang. draconis an. ℥j. aqua vita ℥ij. liquefiant simul omnia lento igne, & fiat Balsamum ut artis est, addendo pulveris ireos Florent. aloes, Mastiches, myrrha, an. ℥j.* I have done wondes with this Balsame in the agglutination of simple wounds, wherein no strange body hath beene.

The palsey fol-
lowes upon
wounds of the
necke.

Signes that
the gullet
is wounded.

The wounds
of the jugular
veines and slee-
pey Arteries are
deadly by acci-
dent.

By hurting
the recurrent
Nerve the
voyce is hurt.

The descripti-
on of the Aus-
thors Balsame.

Now when you have put it in, lay upon it a plaister of *Diacalcitheos* dissolved in oyle of *Roses* and vinegar, as that which hath power to repress the flowing downe of humors, and hinder inflammation, or in steede thereof you may apply *Emp. de Diacalcitheos*.
Gratia, Dei, or Emp. de Ianna.

But if the jugular veines and sleepey Arteries bee cut, let the bleeding bee stayed, as we have shewed in a chapter, treating thereof. When the Weazon or Gullet are wounded, the Chirurghion shall sow them up as neatly as hee can; and the patient shall not endeavour to swallow any hard thing, but be content to bee fed with gelyes and brothes. When a gargarisme is needfull, this following is very good.

R. bordei M. j. florum rosar. p. j. passul. mund. jujubarum an. ʒss, glycyrrhiza ʒj. bul- liant omnia simul, addendo mellis ros. & Iulep. ros. an. ʒij. fiat gargarisma, ut artis est. A gargarisme.

With which being warme the Patient shall moisten his mouth, and throate, for it will mitigate the harshnesse of the part, aswage paine, cleanse and agglutinate, and make him breathe more freely. But that the Chirurghion may not despaire of, or leave any thing unattempted in such like wounds, I have thought good to demonstrate by some examples, how wonderfull the workes of nature are, if they be assisted by Art.

A certaine servant of Monsieur de *Champaigne*, a gentleman of *Anjou*, was wounded in the throat with a sword, whereby one of the jugular veines was cut together with his Weazon. Hee bled much and could not speake, and these symptomes remained, untill such time as the wound was sowed up, and covered with medicines. But if the medicines at any time were more liquid, hee as it were sucked them by the wound and spaces betweene the stitches, and presently put forth at his mouth that which he had sucked or drawne in. Wherefore more exactly considering with my selfe, the greatnesse of the Wound, the spermaticke, and therefore dry and bloodlesse nature unapt to agglutination, of the affected part, but chiefly of the Weazon & jugular veines, as also for that the rough Artery is obnoxious to these motions which the gullet performes in swallowing, by reason of the inner coate, which is continued to the coate of the gullet, by which meanes these parts mutually serve each other with a reciprocall motion, even as the ropes which runne to the wheele of a pulley; furthermore weighing that the Artery was necessary for the breathing, and tempering the heate of the heart, as the jugular veines served for the nourishment of the upper parts; and lastly weighing with my selfe the great quantity of blood he had lost, which is as it were the treasure of nature, I told those which were present, that death was neere and certainly at hand. And yet beyond expectation, rather by divine favour than our Art, he recovered his health.

Equally admirable is this history following. Two Englishmen walked out of the City of *Paris* for their recreation to the wood of *Vincenne*; but one of them lying in wait to rob the other of his money and a massie chaine of gold which hee wore, set upon him at unawares, cut his throate and robbed him, and so left him amongst the Vines which were in the way, supposing he had kill'd him having with his dagger cut the Weazon and gullet.

This murderer came backe to the city; the other halfe dead, crawled with much ado to a certaine Peasants house, and being dressed with such medicines as were present and at hand, he was brought to the City, and by his acquaintance committed to my cure to be cured.

I at the first, as diligently as I could, sowed up the Weazon which was cut quite asunder, and put the lips of the wound as close together as I could; I could not get hold of the gullet because it was fallen downe into the stomacke, then I bound up the wound with medicines, pledgers and fit ligatures. After he was thus drest he begun to speake, and tell the name of the villaine the author of this fact, so that hee was taken and fastened to the wheele, and having his limbes broken lost his wretched life, for the life of the innocent wounded man who dyed the fourth day after he was hurt.

The like hurt befell a certaine Germane, who laye at the house of one *Perots* in the

the streete of Nuts; he being franticke in the night cut his throate with a sword. I being called in the morning by his friends who went to see him, drest him just after the same manner as I drested the Englishman. Wherefore he presently recovering his speech, which before could not utter one sillable, freed from suspition of the crime and prison the servant, who lying in the same chamber with him, was upon suspition committed to prison, and confessing the thing as it was done, lived foure dayes after the wound, being nourished with broathes put into his fundament like clysters, and with the gratefull vapour of comfortable things, as bread newly drawne out of the Oven and soked in strong wine.

Having thus by the Art of Chirurgery made the dumbe speake for the space of foure dayes.

CHAP. XXX.

Of the Wounds of the Chest.

The differ-
ences of wounds
of the Chest.



Some wounds of the Chest are on the fore side, some behinde, some penetrate more deepe, others enter not into the capacity thereof, other some peirce even to the parts contained therein, as the *Mediastinum*, Lungs, heart, midriffe, hollow veine, and ascendent artery; Other some passe quite through the body; whereby it happens that some are deadly, some not.

The signes.

You shall thus know that the wound penetrates into the capacity of the Chest, if that when the patients mouth and nose be shut, the breath, or winde breakes through the wound with noyse, so that it may dissipate, or blow out a lighted candle being held neere it. If the patient can scarce either draw, or put forth his breath, which also is a signe that there is some blood fallen downe upon the *Diaphragma*.

Signes that
the heart is
wounded.

By these signes you may know that the heart is wounded: If a great quantity of blood gush out, if a trembling possesse all the members of the body; if the pulse bee little and faint, if the colour become pale, if a cold sweate and frequent sowning assaile him, and the extreame parts become cold, then death's at hand.

A History.

Yet when I was at *Turin* I saw a certaine Gentleman who fighting a Duell with another, received a wound under his left brest which pierced into the substance of his heart, yet for all that he stricke some blowes afterwards, and followed his flying Enemie, some two hundred paces untill hee fell downe dead upon the ground; having opened his body, I found a wound in the substance of the heart, so large as would containe ones finger; there was onely much blood poured forth upon the midriffe.

Signes that
the Lungs are
wounded.

These are the signes that the Lungs are wounded, for the blood comes foemie or frothy out of the wounds the patient is troubled with a cough, hee is also troubled with a great difficulty of breathing and a paine in his side, which hee formerly had not; he lyes most at ease when he lyes upon the wound, and sometimes it comes so to passe, that lying so he speakes more freely and easily, but turned on the contrary side, he presently cannot speake.

Signes that the
midriffe is
wounded.

When the *Diphragma* or midriffe is wounded, the party affected is troubled with a weight or heavinesse in that place, hee is taken with a *Delirium*, or raving by reason of the sympathy of the Nerves of the sixth conjugation which are spread over the midriffe; difficulty of breathing, a cough and sharpe paine trouble the patient, the Guts are drawne upwards; so that it sometimes happens by the vehemency of breathing, that the stomacke and guts are drawne through the wound into the capacity of the Chest; which thing I observed in two.

A History.

The one of these was a Mason, who was thrust through the midst of the midriffe, where it is Nervous, and dyed the third day following. I opening his lower belly, and not finding his stomacke, thought it a monstrous thing; but at length searching diligently, I found it was drawne into the Chest, though the wound which was scarce

an inch broad. But the stomacke was full of winde, but little humidity in it.

The other was called capitaine *Francis d'Aon* a Native of *Xintoigne*, who before *Roche* was shot with a musket bullet, entring by the breast-bone neere to the sword-like Gistle, and passing through the fleshy part of the midriff, went out at the space betwene the fifth and sixth bastard ribbes. The wound was healed up on the out side, yet for all that there remained a weakenesse of the stomacke, whereupon a paine of the guttes like to the colicke tooke him especially in the Evening, and on the night, for which cause he durst not sup but very sparingly. But on the eighth month after, the paine raging more violently in his belly than it was accustomed, hee dyed; though for the mitigating of the vehemency thereof *Simon Malmady* and *Anthony du Val* both learned Physitions, omitted no kinde of remedy. The body of the diseased was opened by the skillfull Chirurgeon, *James Guillemeau*, who found a great portion of the collicke gut swelled with much wind gotten into the Chest, through the wound of the *Diaphragma*, for all it was so small that you could scarce put your little finger in thereat. But now let us returne from whence we digressed.

Another History.

We understand that there is blood poured forth into the capacity of the Chest by the difficulty of breathing, the vehemency of the encreasing feaver, the stinking of the breath, the casting up of blood at the mouth, and other symptomes which usually happen to these who have putrified and clotted blood poured out of the vessels into the belly, infecting with the filthy vapour of the corrupt substance, the parts to which it shall come.

Signes that there is blood poured into the capacity of the Chest.

But also, unlesse the patient cannot lye upon his backe, he is troubled with a desire to vomite, and covets now and then to rise, whence hee often falls into a swoond, the vitall faculty which susteines the body being broken and debilitated both by reason of the wound, and concreate or clotted blood; for so putting on the quality of poyson, it greatly dissipates and dissolves the strength of the heart.

Signes that the spine is wounded.

It is a signe the spinall marrow is hurt, when a convulsion or Palsie, that is, a suddaine losse of sense and motion in the parts thereunder, an involuntary excretion of the Urine and other excrements, or a totall suppression of them, seizes upon the Patient.

When the hollow veine and great Artery are wounded, the patient will dye in a short time, by reason of the suddaine and abundant effusion of the blood and spirits, which intercepts the motion of the lungs and heart, whence the party dyes sufforaced.

CHAP. XXX.

Of the cure of the Wounds of the Chest.

WE have read in *Iohn de Vigo*, that it is disputed amongst Chirurgions concerning the consolidation of wounds of the Chest. For some thinke that such wounds must bee closed up, and cicatrized with all possible speed, least the cold ayre come to the heart, and the vitall spirits flye away and bee dissipated. Others on the contrary thinke that such wounds ought to be long kept open; and also if they be not sufficiently large of themselves, that then they must be enlarged by Chirurgery, that so the blood powred forth into the capacity of the Chest may have passage forth, which otherwise by delay would putrefie, whence wound ensue an increase of the feaver, a fistulous ulcer, and other pernicious accidents.

Vigo tract. de vuln. thorac. cap. 10.

The first opinion is grounded upon reason and truth, if so bee that there is little or no blood poured forth into the capacity of the Chest; But the latter takes place where there is much more blood contained in the empty spaces

of the Chest. Which least I may seeme rashly to determine, I thinke it not amiss to ratifie each opinion with a history thereto agreeable.

A History.

Whilest I was at *Turin*, Chirurgion to the Marshall of *Montejan*, the King of France his Generall, I had in cure a souldier of *Paris*, whose name was *L'evesque*, he served under captaine *Renonart*. He had three wounds, but one more greivous than the rest, went under the right brest, somewhat deepe into the capacity of the Chest, whence much blood was poured forth upon the midriffe, which caused such difficulty of breathing, that it even tooke away the liberty of his speech; besides, though this occasion he had a vehement feaver, coughed up blood, and a sharpe paine on the wounded side. The Chirurgion which first dressed him, had so bound up the wound with a strait and thicke suture, that nothing could flow out thereat. But I being called the day after, and weighing the present symptomes which threatned speedy death, judged that the sowing of the wound must straight be loosed; which being done, there instantly appeared a clot of blood at the orifice thereof; which made mee to cause the patient to lye halfe out of his bed, with his head downewards, and to stay his hands on a settle which was lower than the bed, and keeping himselfe in this posture, to shut his mouth and nose that so his lungs should swell, the midriffe be stretched forth, and the intercostall muscles and those of the *Abdomen* should be compressed, that the blood powred into the Chest might be evacuated by the wound; but also that this excrecion might succcede more happily, I thrust my finger somewhat deepe into the wound, that so I might open the Orifice thereof being stopped up with the congealed blood; and certainly I drew out some seaven or eight ounces of putrified and stinking blood by this meanes. When he was layd in his bed, I caused frequent injections to be made into the wound of a decoction of Barly with honey of Roses and red Sugar, which being injected I wisht him to turne first on the one, and then on the other side and then, againe to lye out of his bed as before: for thus he evacuated small, but very many clots of blood, together with the liquor lately injected; which being done, the symptomes were mitigated, and left him by little and little. The next day I made another more detergent injection, adding thereto wormewood, centaury, and Aloes; but such a bitternesse did rise up to his mouth together with a desire to cast, that he could not longer endure it. Then it came into my mind that formerly I had observed the like effect of the like remedy in the Hospirall of *Paris*, in one who had a fistulous ulcer in his Chest. Therefore when I had considered with my selfe that such bitter things may easily passe into the Lungs, and so may from thence rise into the Weazon and mouth, I determined that thence forwards I would never use such bitter things to my patients, for the use of them is much more troublesome than any way good and advantagious. But at the length this patient by this and the like meanes recovered his health beyond my expectation.

Why bitter things must not be cast in to the Chest.

Read the History of Maryllus in Galen, lib. 7. de Anatom. aduersionibus.

What harme ensues the too long use of tents.

No liniments must be used in wounds of the Chest.

But on the contrary, I was called on a time to a certaine *Germane* gentleman who was runne with a sword into the capacity of his Chest; the neighbouring Chirurgion had put a great tent into the wound at the first dressing, which I made to bee taken forth, for that I certainly understood there was no blood powred forth into the capacity of the Chest because the patient had no feaver, no weight upon the *diaphragma*, nor spitted forth any blood. Wherefore I cured him in few dayes by onely dropping in some of my balsame and laying a plaster of *Diacalcitheos* upon the wound.

The like cure I have happily performed in many others. To conclude, this I dare boldly affirme, that wounds of the Chest by the too long use of tents degenerate into *Fistula's*.

Wherefore if you at any time shall undertake the cure of wounds which penetrate into the capacity of the Chest, you shall not presently shut them up at the first dressing, but keep them open for two or three dayes; but when you shall finde that the patient is troubled with no or very little paine, and that the midriffe is pressed downe with no weight, and that he breathes freely, then let the tent be taken forth, and the wound healed up as speedily as you can by covering it onely with lint dipped in some balsame which hath a glutinative faculry, and layd somewhat broader than the wound; never apply liniments to wounds of this kinde, lest the patient by breathing draw them into the capacity of the Chest. Wherefore also you must have

a care that the tent put into those kindes of wounds may be fastened to the Pledgets, and also have somewhat a large head, lest they should be drawne as we sayd into the capacity of the Chest, for if they fall in, they will cause putrifaction and death.

Let *Emplast. Diacalcitheos* or some such like bee applied to the wound. But if, on the contrary, you know by proper, and certaine signes, that there is much blood fallen into the spaces of the Chest, then let the orifice of the wound bee kept open with larger tents, untill all the *Sanies* or bloody matter, wherein the blood hath degenerated, shall bee exhausted. But if it happen at any time, as assuredly it sometimes doth, that notwithstanding the Art and care of the Physition, the wound degenerates into a *Fistula*, then the former evill is become much worse. For *Fistula's* of the Chest, are scarce cured at any time, and that for divers causes. The first is, for that the muscles of the Chest are in perpetuall motion; Another is, because they on the contrary inside are covered onely with the membrane investing the ribbes, which is without blood. The third is, for that the wound hath no stay, by means whereof it may be compressed, sowed, and bound, whereby the lips being joyned together, the wound may at length be replenished with flesh, and cicatrized.

Wounds of the Chest easily degenerate into a *Fistula*.

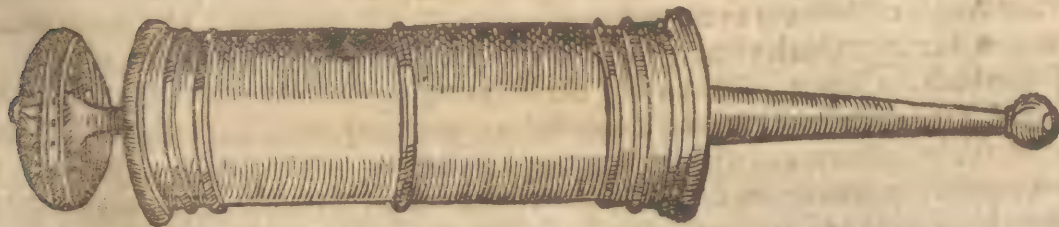
But the reason why wounds of the Chest doe every day heape up and poure forth so great a quantity of matter, seemes to be their vicinity to the heart, which being the fountaine of blood, there is a perpetuall efflux thereof from thence to the part affected. For this is natures care in preserving the affected parts, that continually and abundantly without measure or meane it sends all its supplies, that is, blood and spirits, to the ayde. Ad hereto, that the affected parts by paine, heate and continuall motion of the Lungs and midriffe, draw and allure much blood to themselves. Such like blood defiled by the malignity and filth of the wound, is speedily corrupted; whence it is that from the perpetuall afflux of blood, there is a continuall efflux of matter or filth, which at the last brings a man to a consumption; because the ulcerated part like a ravenous wolfe consumes more blood by the paine, heate and motion than can be ministred thereto by the heart. Yet if there bee any hope to cure and heale the *Fistula*, it shall bee performed, (after the use of diet, phlebotomie, and according to the prescript of the Physition) by a vulnerary potion, which you shall finde described when we treat of the *Caries* or rottenesse of the bones. Wherefore you shall make frequent injections therewith into the *Fistula*, adding and mixing with it *syrupus de rosis siccis* and *mel rosa rum*. Neither doe I, if the putrefaction bee great, feare to mixe therewith *Aegyptiacum*. But you must have a care to remember and observe the quantity of the injected liquor, that you may know whether it all come forth againe after it hath performed its detergent office. For if any thereof remaine behinde in the corners and crooked passages, it hurts the part, as corrupted with the contagion thereof.

Why there flows such plenty of matter out of wounds of the Chest.

The cure of a *Fistula* in the Chest.

When *Aegyptiacum* must be put into the injections.

The forme of a Syring fit to make injection, when a great quantity of liquor is to be injected into any part.



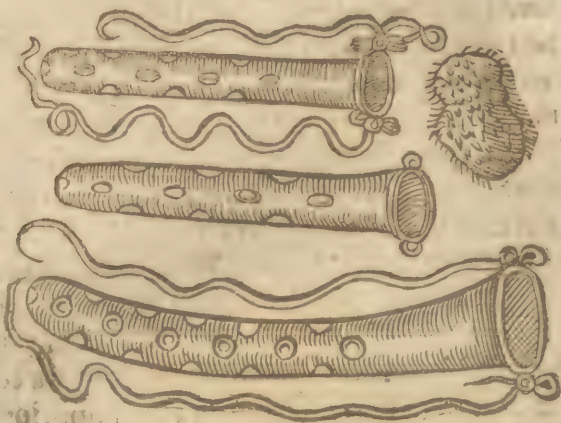
After the injected liquor is come forth, a pipe of gold, silver or lead, shall bee put into the fistulous ulcer; and it must have many holes in it, that so the filth may passe forth at them; it must be fast tyed with strings, that it may not fall into the capacity of the Chest.

A great sponge steeped in *aqua vite* and wrung forth againe, shall bee layd hot to the end or orifice thereof, both to hinder the entrance of the ayre into the *Fistulous* ulcer, as also to draw forth the filth thereof by its gentle heate, the which thing the patients

Patient shall much further it often times both day and night hee hold his breath, stopping his mouth and nose, and lying upon the diseased side, that so the *Sanies* may bee the more forcibly evacuated; neither must wee leave putting in the pipe, before that this fistulous ulcer shall bee almost dry, that is, whole, as when it yeelds little, or no matter at all; then it must be cicatrized. But if the orifice of this fistulous ulcer being in the upper part hinder the healing thereof, then by a chirurgicall Section a passage shall be made in the bottome, as we sayd before in an *Empyema*.

The delineation of the pipes with their strings and sponges.

The reader must note that the pipes which are fit for this use, neede not have so many holes as these here exprest; but onely two or three in their ends: for the flesh growing and getting into the rest, make them that they cannot be plucked forth without much paine.



What wounds
of the Lungs
cureable.

The harme
that ensues up-
on coughing
in wounds of
the Lungs.

How *Ecleg-
ma's* must be
swallowed.

The utility of
Sugar of roses
in ulcerated
or wounded
Lungs.

A wound made in the Lungs admits cure, unless it bee very large; if it bee without inflammation; if it bee on the skirts of the Lungs, and not on their upper parts; if the patient containe himselfe from coughing much, and contentious speaking, and great breathing: for the wound is enlarged by coughing, and thence also arises inflammation; the *Pus* and *Sanies* whereof, whilst the lungs againe endeavour to expell by coughing, by which meanes they are onely able to expell that which is hurtfull and troublesome to them, the ulcer is dilated, the inflammation augmented, the Patient wastes away, and the disease becomes incurable.

There have beene many *Eclegma's* described by Physitions for to close the ulcer; which when the patient useth, he shall lye on his backe, to keepe them long in his mouth, so to relaxe the muscles of the *Larinx*; for thus the medicine will fall by little and little alongst the coates of the Weazon, for if it should fall downe in great quantity, it would be in danger to cause coughing. Cowes, Asses, or Goates milke with a little honey, least they should corrupt in the stomacke, are very fit remedies for this purpose; but womans milke exceeds the rest.

But Sugar of Roses is to be preferred before all other medicines, in the opinion of *Avicen*, for that it hath a detergent, and also an astringent and strengthening faculty, than which nothing is more to bee desired in curing of ulcers. When you shall thinke it time to agglutinate the clenfed ulcer, you must command the patient to use emplasticke, austere, and astringent medicines, such as are *Terra sigillata*, *bolus armenus*, *hypocystis*, plantaine, knot-grasse, *Sumach*, *acacia* and the like, which the patient shall use in his brothes and *Eclegma's*, mixing therewith honey of roses, which serving for a vehicle to the rest, may carry away the impacted filth which hinders agglutination. But seeing an hecticke feaver easily follows upon these kindes of wounds, and also upon the affects of the Chest and lungs, it will not be amisse to set downe somewhat concerning the cure thereof, that so the Chirurgien may know to administer some helpe to his patient, whilst a Physition is sent for, to overcome this disease with more powerfull and certaine remedies.

CHAP. XXXII.

Of the differences, causes, signes and cure of an Heeticke feaver.



Heeticke feaver is so called; either for that it is stubborne and hard to cure and loose, as things which have contracted a habite; for *Hexis* in Greeke signifies a habite; or else for that it seizes upon the solide parts of our bodies called by the Greekes *Hexeis*; both which the Latine word *Habitus* doth signifie.

The reason of the name.

There are three kinde, or rather degrees of this feaver. The first is when the heeticke heate consumes the humidity of the solide parts. The second is, when it feeds upon the fleshy substance. The third and uncureable is, when it destroyes the solide parts themselves. For thus the flame of a lampe first wastes the oyle, then the proper moysture of the weeke. Which being done there is no hope of lighting it againe what store of oyle soever you poure upon it. This feaver very seldome breeds of its selfe, but commonly followes after some other.

The difference cesterhook.

Wherefore the causes of a heeticke feaver are, sharpe and burning feavers not well cured, especially if their heate were not repressed with cooling epithemes applyed to the heart and *Hypochondria*. If cold water was not fitly drunke. It may also succcede a Diary feaver which hath bin caused and begun by some long, great and vehement grief or anger, or some too violent labour, which any of a slender and dry body hath performed in the hot sunne. It is also oftentimes caused by an ulcer or inflammation of the Lungs, an *empyema* of the Chest, by any great and long continuing *Phlegmon* of the liver, stomacke, mesentery, wombe, kidneyes, Bladder, of the guts *Jejunum* and *Colon*, and also of the other Guts, of if the *Phlegmon* succeed some long *Diarrhæa*, *Lienteria* or bloody flux; whence a consumption of the whole body, and at last a heeticke feaver, the heate becoming more acride, the moysture of the body being consumed.

The causes.

This kinde of feaver as it is most easely to bee knowne, so is it most difficult to cure; the pulse in this feaver is hard, by reason of the drynesse of the Artery which is a solide part; and it is weake by reason of the debility of the vitall faculty, the substance of the heart being assaulted. But it is little and frequent because of the distemper and heate of the heart, which for that it cannot by reason of its weakenesse cause a great pulse to coole its selfe, it labours by the oftennesse to supply that defect.

The signes.

But for the pulse, it is a proper signe of this feaver, that one or two houres after meate the pulse fees stronger than usuall; and then also there is a more acride heate over all the patients body. The heate of this flame lasts untill the nourishment bee distributed over all the patients body; in which time the drynesse of the heart in some sort tempered and recreated by the appulse of moyst nourishment, the heate increases no otherwise than lime which a little before seemed cold to the touch, but sprinkled and moystned with water growes so hot, as it smoakes and boyles up. At other times there is a perpetuall equality of heate and pulse in smallnesse, faintnesse, obscurity, frequency, and hardnesse, without any exacerbation, so that the patient cannot thinke himselfe to have a feaver, yea hee cannot complaine of any thing, hee fees no paine, which is another proper signe of an heeticke feaver.

Why in heeticke the heate is more acride after meate.

The cause that the heate doth not shew its selfe is, it doth not possesse the surface of the body, that is, the spirits and humors, but lyes as buried in the earthy grossnesse of the solide parts. Yet if you hold your hand somewhat long, you shall at last perceive the heate more acride and biting, the way being opened thereto by the skinne rarified by the gentle touch of the warme and temperate hand. Wherefore if at any time in these kinde of feavers the Patient feele any paine, and perceive himselfe troubled with an inequality and excesse of heate, it is a signe that the heeticke feaver is not simple, but conjoynd with a putride feaver, which causeth such inequality, as the heate doth more or lesse seaze upon matter subject to putrefaction; for a heeticke feaver of its selfe is void of all equality, unlesse it proceede from some externall cause,

The signes of a heeticke joyned with a putride feaver.

The cure,

as from meate; Certainly if an Hippocraticque face may be found in any disease, it may in this, by reason of the colliquation, or wasting away the triple substance. In the cure of this disease, you must diligently observe with what affects it is entangled, and whence it was caused. Wherefore first you must know whether this feaver be a disease; or else a symptome. For if it be symptomaticall it cannot be cured;

A symptomaticall hecticke.

as long as the disease the cause thereof, remaines uncured; as if an ulcer of the guts occasioned by a bloody fluxe shall have caused it, or else a fistulous ulcer in the Chest caused by some wound received on that part, it will never admit of cure, unlesse first the fistulous or dysenterick ulcer shall be cured; because the disease feedes the symptomes, as the cause the effect. But if it be a simple and essentiall hecticke feaver, for that it hath its essence consisting in an hot and dry distemper, which is not fixed in the humors, but in the solide parts, all the counsell of the Physicion must be to renew the body, but not to purge it; for onely the humors require purging, and not the defaults of the solide parts. Therefore the solide parts must bee refrigerated and humected; which wee may doe by medicines taken inwardly and applyed outwardly.

An essentiall hecticke.

Things to bee taken inwardly.

The things which may with good successe bee taken inwardly into the body for this purpose, are medicinall nourishments. For hence we shall finde more certaine and manifest good, than from altering medicines, that is, wholly refrigerating and humecting without any manner of nourishment.

The benefit of medicinall nourishments.

For by reason of that portion fit for nutriment which is therewith mixed they are drawne and carried more powerfully to the parts, and also converted into their substance: whereby it comes to passe that they doe not humect and coole them lightly and superficially, like the medicines which have onely power to alter and change the body, but they carry their qualities more thoroughly even into the innermost substance.

Of these things some are herbes, as violets, purslaine, buglosse, endive, duck-s-meat, or water lentill, mallowes, especially when the belly shall be bound. Some are fruits, as gourds, cowcumbers, apples, prunes, raisons, sweete almonds, and fresh or new pine-apple kernells. In the number of feedes are the foure greater and lesser cold feedes, and these new, for their native humidity, the feedes of poppyes, berberries, quinces. The floures of buglosse, violets, water lillies, are also convenient; of all these things let broth be made with a chicken, to bee taken in the morning for eight or nine dayes, after the first concoction.

The choyce of meates.

For meates; in the beginning of the disease, when the faculties are not too much debilitated, hee shall use such as nourish much and long, though of hard digestion; such as the extreame parts of beasts, as the feete of Calves, Hoggs feete not salted, the flesh of a Tortois, which hath lived so long in a garden, as may suffice to digest the excrementitious humidity; the flesh of white Snailles, and such as have beene gathered in a vineyard, of frogs, river Crabs, Eccles taken in cleere waters and; wel-cooked, hard egges eaten with the juice of Sorrell without spices; Whittings and stockfish. For al such things because they have a tough and glutinous juice, are easily put & glutinated to the parts of our body, neither are they so easily dissipated by the feaverish heat. But when the patient languisheth of a long hectick, he must feede upon meates of easy digestion, and these boyled rather than roasted; for boyled meates humect more, and roasted more easily turne into choler. Wherefore hee may use to eate Veale, Kid, Capon, Pullet, boyled with refrigerating and humecting hearbes; hee may also use Barly creames, Almond milkes, as also bread crummed and moystened with rose water and boyled in a decoction of the foure cold feedes with sugar of roses; for such a Panada cooles the liver, and the habite of the whole body, and nourisheth withall.

The Testicles, wings, and livers of young cockes, as also figges and raisons. But if the patient at length begin to loathe and grow weary of boyled meates, then let him use roast, but so that he cut away the burnt and dried part thereof, and feed onely on the inner part thereof, and that moystned in rose water, the juice of Citrons, Oranges or Pomegranats. Let him abstaine from salt and dry fishes, and chuse such fishes as live in stony waters, for the exercise they are forc'd to undergoe in shunning the rocks

rockes beaten upon by the waves. Asses milke newly milked and seasoned with a little salt, sugar, honey, or fennell, that it may not corrupt, nor grow sowre in the stomacke; or womans milke sucked from the dug by the patient, to the quantity of halfe a pint is much commended; verily womans milke is the more wholsome, as that which is more sweet and familiar to our substance, if so be that the nurse be of a good temper and habite of body. For so it is very good against the gnawings of the stomacke, and ulcers of the Lungs, from whence a Consumption often proceeds. Let your milch Ass be fed with barley, oates, oake leaves; but if the patient chance to bee troubled with the fluxe of the belly, you shall make the milke somewhat astringent, by gently boyling it, and quenching therein pebble stones heated red hot. But for that all natures cannot away with Asses milke, such shall abstaine from it, as it makes to have acrid belchings, difficulty of breathing, a heate and rumbling in the *Hypochondria*, and paine of the head. Let the patient temper his wine with a little of the waters of Lettuce, purslane and water-lillies, but with much buglosse water, both for that it moistens very much, as also for that it hath a specificke power to recreate the heart, whose solide substance in this kinde of disease is greivously afflicted. And thus much of things to be taken inwardly.

How Asses milke must be used in a nettick.

Womans milke more wholsome than Asses.

These things which are to be outwardly applyed, are inunctions, bathes, epithemes, clysters. Inunctions are divers, according to the various indication of the parts where to they are applyed. For *Galen* annoints all the spine with cooling & moderate astringent things, as which may suffice to strengthen the parts, and hinder their wasting, and not let the transpiration; for if it should bee letted, the heate would become more acide, by suppressing the vapours. Oyle of roses, water lillies, Quinces, the mucilages of Gumme tragacanth and arabicke extracted in water of nightshade, with some small quantity of camphire, and a little waxe if neede require; but on the contrary, the parts of the breast must be annoynted with refrigerating and relaxing things; by refrigerating I meane things which moderately coole, for cold is hurtfull to the breast. But astringent things would hinder the motion of the muscles of the chest, and cause a difficulty of breathing. Such inunctions may be made of oyle of Violets, willowes, of the seeds of lettuce, poppyes, water-lillies, mixing with them the oyle of sweete almonds to temper the astringion which they may have by their coldnesse. But you must have great care that the Apothecarie for covetousnesse in steed of these oyles newly made give you not old, rancide and salted oyles, for so in steed of refrigerating, you shall heate the part; for wine, honey and oyle acquire more heate by age; in defect of convenient oyles, we may use butter well washed in violet and nightshade water. The use of such inunctions, is to coole, humect and comfort the parts whereto they are used; they must be used evening and morning, chiefly after a bath.

Things to be outwardly applyed.

A caution in the choyse of Oyles.

Now for Bathes, we prescribe them either onely to moisten, and then plaine warme water wherein the flowres of Violets and water lillyes, willow leaves and barley have beene boyled, will be sufficient; or else not onely to moisten, but also to acquire them a fairer and fuller habite, and then you may adde to your bath the decoction of a sheepes head and Gather, with some butter. But the patient shall not enter into the bath fasting, but after the first concoction of the stomach, that so the nourishment may be drawne by the warmenesse of the bath into the whole habite of the body, for otherwise he which is sicke of a consumption and shall enter the bath with his stomacke empty, shall suffer a greater dissipation of the triple substance, by the heate of the bath, than his strength is well able to endure. Wherefore it is fit thus to prepare the body, before you put it into the bath. The day before in the morning let him take an emollient-clyster, to evacuate the excrements baked in the guts by the heeticke drynesse; then let him eate to his dinner some solide meats about nine of the clocke; and let him about foure of the clocke eate somewhat sparingly, meates of easie digestion to his supper. A little after midnight let him sup of some chicken broth or barley creame, or else two reare egges tempered with some rose water and sugar of roses in steed of salt. Some 4. or 5. hours after, let him enter into the bath, these things which I have set downe, being observed. When he comes out of the bath, let him be dried and gently rubbed, with soft linnen cloathes, and annointed as I former-

The differences of bathes.

Why the patients must not enter the Bath fasting.

How to prepare the body for the Bath.

Things
strengthening
the ventricles.

Epithemes.

ly prescribed, then let him sleepe if he can for two or three houres in his bed: when he wakes let him take some Prisan, or some such like thing, and then repeate his bath after the foresayd manner. He shall use this bath thrice in ten dayes; But if the patient be subject to crudities of the stomacke, so that hee cannot sit in the bath without feare of fowning and such symptomes, his stomacke must be strengthened with oyle of Quinces, Wormewood and Mastich, or else with a crust of bread tosted, and steeped in muskedine, and strewed over with the powders of Roses, Sanders, and so layd to the stomacke, or behinde neare to the thirteenth *vertebra* of the backe, under which place, Anatomie teaches, that the mouth of the stomacke lyes. Epithemes shall be applyed to the liver and heart, to temper the too acride heate of these parts, and correct the immoderate drynesse by their moderate humidity.

What a fluxe
happening in
a heeticke feaver
indicates.

How children
be cured.

Now they shall be made of refrigerating and humecting things, but chiefly humecting; for too great coldnesse would hinder the penetration of the humidity into the part lying within. The waters of Buglosse, and Violets, of each a quarterne with a little white wine is convenient for this purpose. But that which is made of French barley, the seedes of gourds, pompions, or Cowcubers of each three drams in the decoction, and mixed with much tempering with oyle of Violets, or of sweete almonds, is most excellent of all other. Let clothes be dipped and steeped in such epithemes, and layd upon the part, and renewed as oft as they become hot by the heate of the part. And because in heeticke bodies, by reason of the weakenesse of the digestive facultie, many excrements are usually heaped up, and dried in the guts, it will be convenient, all the time of the disease to use frequently glisters made of the decoction of cooling and humecting hearbes, flowres, and seedes wherein you shall dissolve *Cassia* with sugar and oyle of Violets, or water-lillies. But because there often happen very dangerous fluxes in a confirmed heeticke feaver, which shew the decay of all the faculties of the body, and wasting of the corporall substance, you shall resist them with refrigerating and assisting medicines; and meates of grosser nourishment, as Rice, and Cicers, and application of astringent and strengthening remedies; and using the decoction of Oates or parched barley for drinke. Let the patient be kept quiet and sleeping as much as may be, especially if he be a child.

For this feaver frequently invades children by anger, great and long feare, or the too hot milke of the nurse, overheating in the Sunne, the use of wine and other such like causes; they shall be kept in a hot and moystayre, have another Nurse, and be anoynted with oyle of violets; to conclude, you shall apply medicines which are contrary to the morbificke cause.

THE NEW EDITION OF THE
OF THE GREENE AND BLOODY

CHAP. XXXIII.

Of the wounds of the Epigastrium and of the whole lower belly.

Their differences.

Signes of a
wounded
liver.

Signes that the
stomacke and
smaller guts
are wounded.

Signes to
know when
the greater
guts are
wounded.



He wounds of the lower belly are sometimes before, sometimes behind, some onely touch the surface thereof, others enter in; some passe quite through the body, so that they often leave the weapon therein, some happen without hurting the contained parts; others grievously offend these parts, the liver, spleene, stomacke, guts, kidneyes, wombe, bladder, ureters, and great vessels, so that oft times a great portion of the Kall falls forth. We know the Liver is wounded, when a great quantity of blood comes forth of the wound, when a pricking paine reaches even to the swordlike gristle, to which the Liver adheares. Oft times more choler is cast up by vomit, and the patient lyes on his belly with more ease, and content.

When the stomacke or any of the small guts are wounded, the meate and drinke break out at the wound, the *ilia* or flankes swell and become hard, the hicket troubles the patient, and oft times he casts up more choler, and greivous paine wrings his belly, and hee is taken with cold sweates, and his extreme parts waxe cold.

If any of the greater guts shall bee hurt, the excrements come forth at the wound:

When

Signes that
the Kidneyes
are hurt.

Signes that the Bladder is wounded.

Signes that the
womb is
wounded.

Prognosticks.

Lib. 6, cap. 88.

1871

2:4:1

A History.

Another His-
tory.

The first cogitation in curing of these wounds ought to be whether they pierce into the capacitie of the Belly; for those which passe no further than to the *Peritoneum* shall be cured like simple wounds which only require union. But those which enter into the capacity must be cured after another manner. For oft times the Kall or Guts, or both fall forth

The cure of
a wounded
Gut;

... Mm ... mäßig,

Mastic, Myrrhe, Aloes and Bole. Being sowed up, it must not bee put up boystrously together and at once into its place, but by little and little, the Patient lying on the side opposite to the wound. As for example, the right side of the Guts being wounded and falling out by the wound, the Patient shall lye on his left side, for the more easy restoring of the fallne downe Gut, and so on the contrary. If the lower part of the Guts being wounded slide through the wound, then the Patient shall lye with his head low downe, and his buttocks raised up by putting a pillow under them; If the upper part be hurt, then must he lye quite contrary, that the Guts falling downewards by such a site, may give way to these which are fallne out through the wound. But often in this case, the Guts having taken cold by the encompassing aire, swell up & are distended with winde, the which you must discusse before you put them into their place, with a fomentation of the decoction of camomill, melilote, aniseeds and fennell applyed with a sponge, or contained in a bladder; or else with chickens, or whelpes cut alive in the midst and layd upon the swelling; for thus they doe not onely discusse the flatulency, but also comfort the afflicted part. But if the inflation cannot thus be discussed, the wound shall be dilated, that so the Guts may returne the more freely to their place.

The cure
when the Kall
falls out.

Hip. Aph. 8.
sect. 5.

Lib. 6. Meth.

Lib. 6. Meth.
cap. 4.

The cure of
the wounded
fat.

If the Kall shall fall out, it must be speedily restored to its place, for it is very subject to putrifie; for the fat, whereof for the most part it consists, being exposed to the aire, easily looses its native heate, which is small and weake, whence a mortification ensues. Hence is that of *Hippocrates*; If the Kall fall out, it necessarily putrifies. The Chirurgeon shall know whether it putrifie, or not, by the blacknesse and the coldnesse you may perceiv by touching it; neither must you when it putrifies presently restore it to its place, for so the contagion of the putrifaction would spread to the rest of the parts: but what soever thereof is putrefied shall be twiched and bound hard with a string and so cut off, and the rest restored to his proper place: but its good after cutting of it away to leave the string still hanging thereat, that so you may plucke and draw forth whatsoever thereof may by being too straight bound fall away into the capacity of the belly. Some thinke it to be better to let the Kall thus bound to hang forth untill that portion thereof which is putrified fall away of it selfe, and not to cut it off. But they are much deceived, for it hanging thus would not cover the guts, which is the proper place. The Guts and Kall being put up, if the wound be great and worth speaking of, it must be sowed with that suture which is termed *Gastroraphia*; but this kind of suture is thus made. The needle at the first putting in must onely take hold of the *peritoneum*, & then on the opposite side onely of the flesh, letting the *peritoneum* alone, and so goe along putting the needle from without inwards, and from within outwards, but so that you onely take the musculous flesh and skinne over it, and then onely the *peritoneum*, untill you have sowed up all the wound. Hec which doth otherwise shall undergoc this danger, that whereas the coate *peritoneum* is of it selfe without blood, it being devided, or wounded cannot of it selfe be united to it selfe, therefore it requires an intercourse of flesh: otherwise unlesse it be thus united by the benefit of the flesh intermixed therewith, there would remaine an incurable Tumour after the wound is cicatrized on the outside. But that which wee sayd before according to *Galens* minde, that all the wounds must be sowed, it is not so to be taken as if that the wound must be sowed up to the very end; for in the lower part of the wound there must be left a certaine small vent by which the quittance may passe forth, which being wholly clenled and exhausted, the wound must be quite healed up. But the wounds which shall penetrate into the substance of the liver, spleene, ventricles, and other bowells, the Chirurgeon shall not suffer them to be without medicines as if they were desperate, but here shall spare neither labour nor care to dresse them diligently. For doubtfull hope is better than certaine despaire. The bladder, wombe, and right gut being wounded, detergent and agglutinative injections shall be put up by their proper passages. I have read nothing as yet in any author of the wounds of the Fat, for all of them referre the cure thereof to the wounds of the Muscles. Yet I will say this by the way, that wounds of the fat how deepe soever they be, if they be onely simple, may be dressed without putting in of any Tent, but onely dropping in some of my balsame, and then laying upon it a plaister of *Gratia Dei*, or some such like, for so they will heale in a short time.

CHAP. XXXV.

Of the wounds of the Groines, Yard and Testicles.

When the Groines and neighbouring parts are wounded, we must first consider whether they pierce to within: and if they doe penetrate, to what inward parts the come, whether to the bladder, the wombe, or right gut: for these parts are such neare neighbours that oft times they are all wounded with one blow. But for the wounds of the Testicles, and genitall parts, because they are necessary instruments for the preserving the *species* by generation, or a succession of individualls, and to keepe all things quiet at home, therefore the Chirurgion ought to be very diligent and carefull for their preservation. Wherefore if they should chance at any time to be wounded, they shall be dressed as we have formerly delivered, the medicines being varied according to the state of the wound, and the appearing and happening symptomes; for it would be a thing of immense labour to handle all things in particular.

CHAP. XXXVI.

Of the Wounds of the Thighes and Legges.

Wounds which have beene received on the inside of the Thighes, have often caused suddaine death, if they have come to the veine *Saphena*, or the great Artery, or the Nerves the associates of these vessels. But when they are simple, there is nothing which may alter the usual manner of cure. Yet the patient must be carefull to lye in his bed: for the vulgar Italian proverb is true. *La mano al petto, la gamba al letto*, [that is, the hand on the breast, and the legge on the bed] But when they penetrate more deeply into the substance of the part, they bring horrid and fearefull symptomes, as an inflammation, an absesse, from whence oft times such abundance of matter issues forth, that the Patient falls into an *Atrophia* and consumption. Wherefore such wounds and ulcers require a carefull and industrious Chirurgion, who may fitly make incisions necessary for the corrupt parts, and callosity of the fistulous ulcer. Some Chirurgions have beene so bold as to sowe together the end of the Tendons of the Ham, and of other joynts, when they have beene quite cut asunder. But I durst never attempt it for feare of paine, convulsions and the like horrid symptomes. For the wounds of that large Tendon which is composed in the calfe of the Legge by the concurrence of three muscles, and goes to the heele, I have observed that when it hath beene cut with a sword, that the wounds have beene long and hard to cure; and besides when at the last they have beene healed, as soone as the Patient hath got out of his bed, and endeavoured to goe, they have growne ill and broke open againe. Wherefore in such like wounds let the Patient have a care that he begin not to goe, or too boldly to use his hurt leg before it be perfectly cicatrized and the scarre growne hard. Therefore that the patient may be in more safety, I judge it altogether necessary, that he use to goe with Crutches, for a good while after the wound is perfectly healed up.

Why wounds of the inside of the Thigh are oft times deadly.

The large Tendon of the heele hard to consolidate.

CHAP. XXXVII.

Of the wounds of the Nerves, and nervous parts.

He continuity of the nervous parts is divers wayes loosed by the violent incursion of externall things; as by things which contuse, batter and grinde in sunder, as by the blow of a stone, cudgell, hammer, lance, bullet out of a gun, or crooked bow; by the biting of greater teeth; or the pricking of some sharpe thing, as a needle, bodkin, penknife, arrow, splinter; or the puncture of some venomous thing, as of a Sea Dragon; or the edge of some cutting thing, as a sword or Rapier; or of stretching things which violently teare asunder the nervous bodies. Hence therefore it is, that of such wounds some are simple, others compound, and the compound, some more compound than other. For of these some are su-

Differences drawne from things wounding.

Their symp-
tomes.

Why a punc-
ture of a nerve
is deadly.

perficiary and short, others deepe and long; some runne alongst the nervous body, others runne broadwayes; some cut the part quite asunder, others onely a portion thereof. The symptoms which follow upon such wounds are, vehement paine, and defluxion, inflammation, abscesse, feaver, *delirium*, fawning, convulsion, gangrene, sphacell; whence often death ensues by reason of that sympathy, which all the nervous parts have with the braine. Amongst all the wounds of the nervous parts, there is none more to be feared than a puncture, or pricke, nor any which causeth more cruell and dangerous symptoms. For by reason of the straitnesse of the wound, medicines can neyther be put in, nor the sanious matter passe forth: now the sanious matter by long stay acquires virulencie, whereby the nervous parts are tainted and swollne, suffer paine, inflammation, convulsions and infinite other symptoms; of these the wounds are most dangerous, by which the nervous and membranous bodies are but halfe cut asunder. For the portion whereof which remaines whole, by its drawing and contracting its selfe towards the originall, causeth great paine and convulsion by sympathy. The truth hereof is evident in wounds of the head, as when the *pericranium* is halfe cut, or when it is cut to apply a Trepan. For the cutting thereof infers farre greater paine, than when it is cut quite asunder. Wherefore it is safer, to have the nervous body cut quite off, for so it hath no community, nor consent with the upper parts, neither doth it labour, or strive to resist the contraction of its selfe; now this contrariety, and as it were fight, is the cause of paine; yet there arises another misery from such a wound, for the part whereinto the nerve which is thus cut insunder passes, thence forwards looseth its action.

CHAP. XXXVIII.

Of the cure of wounds of the nervous parts.

A wound of
the nervous
parts indicates
contrary to
the generall
cure of
wounds.

A Historic.

IT is the ancient doctrine of the ancient Physicians, that the wounds of the nervous parts should not presently be agglutinated (which notwithstanding the generall and first indication usually taken from the solution of continuity requires) but rather, chiefly if they be too strait, that the punctures should be dilated, by cutting the parts which are above them, and let them be kept long open that the filth may passe freely forth and the medicine enter well in. Yet I in many cures have not followed this counsell, but rather that which the common indication requires.

That cure is in fresh memory which I performed upon Monsieur le Cœq, a Procter of the spirituall court, who dwelt in our Ladies streete; he gathering and binding up some loose papers, run a penknife which was hid amongst them, through his hand. Also one of his neighbours who went to spit a piece of beefe, thrust the spit through the midst of his hand. But I presently agglutinated both their wounds, without any danger, dropping presently in at the first dressing a little of my balsame warme, & putting about it a repelling & astringent medicine, & by this meanes they were both of them healed in a short time, no symptome thereupon happening. Yet I would not have the young Chirurgion to run this hazard, for first he must be well practised and accustomed to know the tempers and haits of men; for this manner of curing would not doe well in a plethoricke body, or in a body replete with ill humours, or endued with exquisite sense. Therefore in such a case it will be safer to follow the course here set downe. For wounds of the nerves doe not onely differ from other wounds, but also among themselves in manner of curing. For although all medicines which draw from farre, and waste sanious humors, may be reputed good for the wounds of the nerves; yet those which must be applyed to punctures and to those nerves which are not wholly laid open, ought to be far more powerfull, sharpe and drying, yet so that they be not without biting, that so penetrating more deepe they may draw forth the matter, or else consume and discusse that which eyther lies about the nerves, or moistens their substance. On the contrary when the sinewes are bared from flesh and the adjoyning particles, they stand in neede but of medicines, which may onely dry. Here you may furnish your selves with sufficient store of medicins good for the nerves howsoever pricked. As *R. Terebinth. ven. & olei veteris an ʒj. aqua vita parum.* Or *R. olei Terebinth. ʒj. aqua vita ʒj. euphorb. ʒss.* Or *R. radices Draconis, Brionia, valeriana, & gentiana exsiccatas, & in pulverem redactas, misce cum decocto centaury,*

Medecines fit
for wounds
of the nerves.

aut oleo, aut exungia veteri; drop hereof warme into the wound as much as shall suffice. Or else put some Hogges, Goose, Capons, or Beares grease, old oyle, oyle of Lillyes or the like, to *Galbanum*, pure Rozin, *opopanax* dissolved in *aqua vite* and strong vinegar. Or *R. olei hypericonis, sambuci, & de euphorbia an. ʒij. sulphuris vivi subtiliter pulverisati ʒʒ gummi ammoniaci, bdellij, an. ʒij. aceti boni ʒij. vermium terrest. preparat. ʒij. bullians omnia simul ad consumptionem aceti.* Let as much hereof as shall suffice be dropped into the wound; then apply this following cerate, which drawes very powerfully. *R. olei supra scripti ʒj. terebinth. venet. ʒʒ. diachylonis albi cum gummi, ʒx. ammoniac. bdellij in aceto dissolutorum an. ʒij. resin pinz. gum. elemi. picis navalis an. ʒv. cera quod sufficit, fiat ceratum satis molle.* We must use somewhiles one, somewhiles another of these medicines in punctures of the Nerves with choise and judgement, according to their conditions, manner, depth, and the temperaments and habit of the wounded bodies. But if the paine yeeld not to such remedies, but rather increase, with the inflammation of the affected part, a swelling of the lips of the wound, and sweating forth of a serous, thinne and virulent matter or filth, then you shall poure into it sealding oyle, and shall touch three or foure times not onely the surface of the wound but the bottome thereof with a ragge dipped therein and tyed to the end of a *spatula*. For this will take away the sense from the Nerve, Tendon, or Membrane, like as if they were burnt with a cautery, and so the paine will be eased. So in the most grievous paines of rotten teeth, the thrusting of an hot iron into their roots, or stopping them with cotten dipped in oyle of Vitrioll, or *aqua vite*, gives most certaine ease; for by burning the Nerve which is inserted into their roots, the sense and so consequently the paine is taken away. So also in malignant, gnawing, eating, and spreading ulcers, which are alwayes associated with much paine, the paine ceases by applying an Escharoticke, as the pouders of Alum, or Mercury, or *egyptiacum* made somewhat more strong than usuall. That the yong Chirurgion may be more ready for this practise and the use of the former remedies, I have thought good to insert the following History both for the lateness of the thing and the pleasing memory of the most laudible Prince.

what wounds
of the Nerves
must be burnt.

A certaine
Anodyne in
paine of the
teeth.

Why Escharo-
ticks must be
used to spread-
ding ulcers.

Charles the ninth the French King being sicke of a feaver, Monsieur Chapellan and Castellan his Physicians thought it fit hee should be let blood; for the performance whereof, there was called a Chirurgion wondrous famous for that businesse; but when as he by chance had pricked a nerve in stead of a veine, the King cryed out, that he felt a mighty paine in that place. Then I bid, that the ligature should straightwayes be loosed, otherwise the arme would presently be much swelled. But he going slowly about it, behold the arme begun to swell with such contraction, that he could not bend it, nor put it forth, and cruell paine molested not onely the pricked particle, but all the whole member besids. I forthwith laid upon the wound a plaister of *Basilicō*, to hinder the agglutination thereof, & then I wrapped all the arme in a double linnen cloth dipped in oxycrate, putting upon it an expulsive ligature, which beginning at the wrist & ending at the top of the shoulder, might keepe the blood and spirits from feare of defluxion and inflammation. This being thus performed, we went aside to consult what was necessary to be done, both to allwage the paine, as also to divert the other symptoms, which usually happen upon punctures of the nerves. I being desired, thus delivered my opinion, that in my minde, there were nothing better, than presently to drop into the wound some oyle of Turpentine warmed and mixed with a little *aqua vite*. And then all the arme should be covered with a plaister of *Diacalcitheos* dissolved in vinegar and oyle of Roses, bound over and besides with the expulsive ligature, which we formerly mentioned. For the oyle and *aqua vite* have a faculty to penetrate into the bottome of the wound, & to exhaust and dry up, the serous and virulent humour, which sweats from the substance of the pricked nerve; and also to mitigate the paine by its actuall heate. Furthermore the emplaster *Diacalcitheos* hath a faculty to dissolve the humour which hath already fallen downe into the arme, and to hinder the entrance and defluxion of any new matter. And the ligature is such as by its moderate striction would serve to strengthen the muscles, and to presse out and repell the humours which were fallen downe into the upper part, and to prohibite that which is ready to fall downe. Mine advice being approved of the Physicians

A famous his-
torie.

both in word and deede, the paine was mitigated. But the humour stayed in the part, for the dissolving and drying whereof, this following remedy was used.

A dissolving
and drying ca-
tastrophe.

R. far. hordei & orobi, an. ʒij. flor. chamam. & melilot. an. p. ij. butyr. recentis sine sale ʒjss. lixivij barbitonferis quod sufficit, fiat cataplasma ad formam pulvis. By these remedies the King at the last after three months space was perfectly healed, so that there remained no signe of the depraved action in the part. But if at any time there shall be so great contumacie, that it will not yeeld to these meanes, but that there is imminent danger of a convulsion; it will bee better to cut it in sunder whether Nerve, Tendon or Membrane, than to expose the patient to the danger of a deadly convulsion; for thus indeede the peculiar action of that part will be lost, but the whole body preserved thereby; for so we had determined by common consent, that if the paine which afflicted the King would not yeeld to the prescribed remedies, eyther to poure in scalding oyle, or else to cut the sinew quite asunder.

A Historie.

For the late and sad memory of Mistris *Courtin* dwelling in the streere of the holy-Crosse was in our mindes, who of a veine not well opened in her arme fell into a Gangraene and totall mortification of that whole part, of which shee died, because shee was not dressed with the formerly mentioned medicines. Yet wee must abstaine from these too powerfull remedies, when the pricked nerve shall lye bare, for else the paine would be encreased, and more grievous symptomes follow. Wherefore as I have formerly wished, more milde medicines must be applyed, which may dry up the serous humour without biting or acrimonye, as *R. cerebinth. venet. in aq. ros. lota ʒij. boli armen. subtiliter pulverisati, ʒij. incorporantur simul.* Our Ballame also is excellent in this case, and this of *Vigoes* which followes.

An anodyne
and Sarcotick
Ballame.

R. olei. rosar. omphacini ʒjss. olei de terebinth. ʒij. succi plantag. ʒss. semin. hypericonis aliquantulu contriti. m. s. tutia prepar. ʒij. calcis decies lota cum aqua plantagin. ʒij. antimony ʒi. sevi hircini, & vitulini, an ʒv. vermium terrestrium cum vino lotorum ʒjss. bulliant omnia simul dempta tutia in cyatho decoctionis hordei, ad consumptionem aquae & vini, colentur, rursumq; igni admoveantur, addendo tutiam, & fiat linimentum cum cera alba, & ʒss. croci. This liniment asswages paines, and covers the bared nerves with flesh. This cure of punctured nerves, may with choise and judgement and observing the proportion of the parts be transferred to the pricked Tendons and membranes. But take this as a generall and common rule, that all nervous bodies howsoever hurt, are to bee comforted by anointing them with hot oyles, such as the oiles of Bayes, Lillies, of Wormes, Sage, or some other such like remedy being applyed to their originalls and more notable passages; as to the originall of the spinall marrow, the armpits and groines. Neither doe I thinke it fit in this place to omit an affect which sometimes happens to the large Tendon of the heele, of which we formerly made mention. For it oft times is rent or torne by a small occasion without any signe of injury or solution of continuity apparent on the outside as by a little jumpe, the slipping aside of the foote, the too nimble getting on horseback, or the slipping of the foote out of the stirrop in mounting into the sadlle. When this chance happens it will give a cracke like a Coachmans whip; above the heele, where the tendon is broken, the depressed cavity may be felt with your finger, there is great paine in the part, & the parry is not able to goe. This mischance may be amended by long lying and resting in bed, and repelling medicines applyed to the part affected in the beginning of the disease, for feare of more grievous symptomes; & then applying the Blacke plaister, or *Diascaltitheatos* or some other such, as neede shall require; neither must we hereupon promise to our selves or the patient certaine or absolute health. But on the contrary at the beginning of the disease we must foretell, that it wil never be so cured but that some reliques may remaine, as the depression of the part affected and depravation of the action and going; for the ends of this broken or relaxed Tendon by reason of its thickenesse and contumacie cannot easily be adjoynded, nor being adjoynded, united.

A generall
rule for all
wounds of
all Nervous
parts.

CHAP. XXXIX.

Of the wounds of the joynts.

BEcause the wounds of the joynts have something proper and peculiar to themselves, besides the common nature of wounds of the Nerves, therefore I intend to treat of them in particular. Indee they are alwayes very dangerous, and for the most part deadly, by reason of the nervous productions and membranous Tendons wherewith they are bound and engirt, and into which the Nerves are inserted: whereby it comes to passe, that the exquisite sense of such like parts will easily bring malignant symptomes, especially if the wound possesse an internall, or as they terme it, a domestique part of them; as for example, the arme pits, the bending of the arme, the inner part of the wrist, and ham, by reason of the notable Veines, Arteries and Nerves of these parts, the loosed continuity of all which brings a great flux of blood, sharpe paine and other malignant symptomes, all which we must resist according to their nature and condition, as a flux of blood with things staying bleeding; paine with anodynes. If the wound be large and wide, the severed parts shall be joynd with a suture, leaving an orifice in the lower part, by which the quittance may passe forth. This following powder of *Vigoes* description must be strewed upon the suture.

Why wounds
of the joynts
are malignant.

The cure.

R. iburis. sang. draconis, boli armen. terra sigill. an. ʒij. aloes, mastich. an. ʒj. fiat pulvis subtilis. And then the joynt must bee wrapped about with a repercussive medicine composed of the whites of egges, a little oyle of Roses, Bole, Mastich, and barley floure. If it be needefull to use a Tent, let it be short and according to the wound thicke, lest it cause paine: and moreover let it bee annointed with the yolke of an egge, oyle of Roses, washed turpentine and a little saffron. But if the wound bee more short and narrow, it shall be dilated, if there be occasion, that so the humour may passe away more freely. You must rest the part, and beware of using cold, relaxing mollifying, humecting, and unctuous medicines, unless peradventure the sharpenesse of the paine must be mitigated. For on the contrary, astringent and desiccant medicines are good, as this following cataplasme.

R. surfur. macri, farin. bordei. & fabarum. an. ʒiiij. florum cham. a. & melil. an. m. s. terebinth. ʒij. mellis communis ʒij. ol. myrtini ʒj. oxymelitis, vel oxycrat. vel luxivij com. quantum sufficit, fiat cataplasma ad formam pultis. Or you may compose one of the Lees of wine, Wheate branne, the powder of Oaken barke, cypresse nuts, galls and Turpentine and such like, that have an astringent, strengthening and drying qualitie, and thereby asswaging paine, and hindering the defluxion of humours. This following medicine is astringent and agglutinative.

An astringent
and drying
cataplasme.

R. Terebinth. venet. ʒij. aq. vitæ parum, pulveris mastich. aloes, myrrha, boli armen. an. ʒij. And also our balsame will be good in this case, if so be that, you adde hereto so much powder which dries without acrimonie as occasion shall serve. I admonished you before to take heede of cold, and now againe; for it is hurtfull to all wounds and ulcers, but especially to these of the nervous parts; hence it is that many dye of small wounds in the winter, who might recover of the same wounds though greater in the Summer. For cold according to *Hippocrates* is nipping to ulcers, hardens the skin, and hinders them from suppuration, extinguisheth naturall heate, causes blackenesse, cold aguish fits, convulsions and distentions. Now divers excrements are cast forth of wounds of the joynts, but chiefly albugineous, that is, resembling the white of an egge, and mucous, and sometime a very thinne water, all which favour of the nature of that humour which nourisheth these parts. For to every part there is appropriate for his nourishment and conservation, a peculiar Balsame, which by the wound flowes out of the same part, as out of the branches of the Vine when they are pruned, their radicall moisture or juice flowes; whence also a *Callus* proceeds in broken bones. Now this same mucous and albugineous humour, flow and as it were frozen flowing from the wounded joynts, shewes the cold distemper of the parts, which causes paine, not to be overcome by medicines onely potentially hot. Wherefore to correct

*Aphor. 20.
sect. 5.*

What matter
usually flowes
from wounds
of the joynts.

Why things
actually hot
must be apply-
ed to the
wounded
ioynts.
Of the site
and posture of
wounded
ioynts.

correct that, we must apply things actually hot, as beasts and swines bladders halfe full of a discussing decoction, or hot bricks quenched in wine. Such actuall heate helps nature to concoct and discusse the superfluous humour impact in the joynts, and strengthens them; both which are very necessary, because the naturall heate of the joynts is so infirme that it can scarce actuate the medicine unlesse it be helped with medicines actually hot. Neither must the Chirurgion have the least care of the figure and posture of the part, for a vicious posture increases ill symptomes, uses to bring to the very part though the wound be cured, distortion, nummes, incurable contraction; which fault least he should runne into, let him observe what I shall now say; If the forepart of the shoulder be wounded, a great boulster must be under the arme pit, and you must carry your arme in a scarfe, so that it may beare up the lower part of the arme, that so the top of the shoulder may be elevated somewhat higher, and that so it may be thereby more speedily and happily agglutinated and consolidated. If the lower part be wounded, when flesh begins to be generated and the lips of the wound to meete, you must bid the patient to moove and stirre his armes divers wayes ever and anon, for if that be omitted or negligently done, when it is cicatrized then it wil be more stiffe and lesse pliable to every motion; and yet there is a further danger least the arme should totally loose its motion. If the wound be upon the joynt of the elbow, the arme shall be placed and swathed in a middle posture, that is, which neither too straitly bowes it, nor holds it too stiffly out; for otherwise when it is cicatrized, there will be an impediment either in the contraction or extension. When the wound is in the wrist, or joynts of the fingers either externally or internally, the hand must be kept halfe shut, continually mooving a ball therein. For if the fingers be held straight stretched forth, after it is cicatrized, they will be unapt to take up or hold any thing, which is their proper faculty. But if after it is healed, it remaine halfe shut, no great inconvenience will follow thereon; for so hee may use his hand divers wayes to his sword, pike, bridle and in any thing else. If the joynts of the Hip be wounded, you must so place the patient that the thigh bone may be kept in the cavity of the hucklebone, & may not part a haire's breadth therefrom, which shal be done with linnen boulsters and ligatures applyed as is fitting, and lying full upon his backe. When the wound shal begin to cicatrize, the patient shall use to moove his thigh every way, least the head of the Thigh-bone sticke in the cavity of the huckle-bone without motion. In a wound of the knee, the legge must be placed straight out, if the patient desire not to be lame. When the joynts of the feete and toes are wounded, these parts shall neither be bended in nor out, for otherwise he will not be able to goe.

To conclude, the site of the foote and legge, is quite contrary to that of the arme and hand.

CHAP. XL.

Of the wounds of the Ligaments.

Ligaments
more dry than
Nerves, and
without sense.



He wounds of the Ligaments, besides the common manner of curing these of the Nerves, have nothing peculiar, but that they require more powerfull medicines, for their agglutination, desiccation and consolidating, both because the Ligamentall parts are harder, and dryer, and also for that they are voyd of sence. Therefore the foresaid cure of Nerves and joynts may be used for these wounds: for the medicines in both are of the same kinde, but here they ought to be stronger and more powerfully drying. The Theorie and cure of all the symptomes which shall happen thereupon have beene expresse in the Chapter of curing the wounds of the nervous parts, so that heere we shall neede to speake nothing of them, for there you may finde as much as you will. Wherefore here let us make an end of wounds, and give thanks to God the author and giver of all good for the happy proesse of our labours, and let us pray that, that which remaines may be brought to a happy end, and secure for the health and safety of good people.

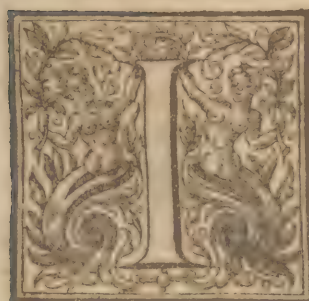
The end of the tenth Booke.



OF VVOUNDS MADE BY GVN SHOT, OTHER FIERIE ENGEINES, AND ALL SORTS OF WEAPONS.

THE ELEVENTH BOOKE.

The Preface.



Have thought good here to premise my opinion of the originall, encrease, and hurt of fiery Engines, for that, I hope it will be an ornament and grace to this my whole treatise: as also to intice my Reader, as it were with these junkets, to our following Banquet so much favouring of Gunpowder. For thus it shall bee knowne to all whence Guns had their originall, and how many habits and shapes they have acquired from poore and obscure beginnings, and lastly how hurtfull to mankind the use of them is.

Polydore Virgill writes that a Germane of obscure birth and condition was the inventor of this new engine which we terme a Gun, being induced thereto by this occasion. He kept in a mortar covered with a tyle, or slate, for some other certaine uses a powder (which since that time for its chiefe and new knowne faculty, is named Gunpowder.) Now it chanced as hee stricke fire with a Steele and flint, a sparke thereof by accident fell into the mortar, whereupon the powder suddainly catching fire, casts the stone or tyle which covered the mortar, up on high; he stood amazed at the novelty and strange effect of the thing, and withall observed the formerly unknowne faculty of the powder; so that he thought good to make experiment thereof in a small Iron trunke framed for that purpose according to the intention of his minde. When all things were correspondent to his expectation, he first shewed the use of his engine to the Venetians, when they warred with the Genoveses about *Fossa Clodia*, in the yeare of our Lord 1380. Yet in the opinion of *Peter Messias*, their invention must have beene of greater antiquity; for it is read in the Chronicles of *Alphonfus* the eleaventh King of *Castile*, who subdued the Isles *Argezires*, that when he besieged the cheefe Towne in the yeare of our Lord 1343. the besieged Moores shot as it were thunder against the assailants, out of Iron mortars. But we have read in the Chronicles written by *Peter Bishop of Leons*, of that *Alphonfus* who conquered *Toledo*, that in a certaine sea fight fought by the King of *Tunis*, against the Moorish King of *Sivill*, whose part King *Alphonfus* favoured, the *Tunetans* cast lightning out of certaine hollow Engines or Trunkes with much noise. Which could be no other, than our Guns, though not attained to that perfection of art and execution which they now have.

*Lib. 2. de inv.
vent. et arm.*

*Cap. 8. prim.
par. 5. et 6.*

Who the inventor of Guns.

The reason of the name.

The danger of Pistolls.

I thinke the deviser of this deadly Engine hath this for his recompence, that his name should be hidden by the darkenesse of perpetuall ignorance, as not meriting for this his most pernicious invention, any mention from posterity. Yet *Andrew Thevet* in his *Cosmography* published some few yeares agoe, when hee comes to treat of the *Suevi*, the inhabitants of Germany, brings upon the authority & credite of a certaine old Manuscript, that the Germane the inventor of this warlike Engine was by profession a monke and Philosopher or Alchymist, borne at *Friburge*, and named *Constantine Anclzen*. Howsoever it was, this kind of Engine was called *Bombarda* (i) a Gun, from that noise it makes, which the Greekes and Latines according to the sound call *Bombus*; then in the following ages, time, art and mans malicioulnesse added much to this rude and unpolisht invention. For first for the matter, Brasse and Copper, mettalls farre more tractable, fusible and lesse subject to rust, came as supplies to Iron. Then for the forme, that rude and undigested barrell, or mortar-like masse, hath undergone many formes and fashions, even so farre as it is gotten upon wheelles, that so it might run not onely from the higher ground, but also with more rapide violence to the ruine of mankind; when as the first and rude mortars seemed not to bee so nimblely traversed, nor sufficiently cruell for our destruction by the onely casting forth of Iron & fire. Hence sprung these horrible monsters of Canons, double Canons, Bastards, Musquits, feild peices; hence these cruell and furious beasts, Culverines, Serpentine, Basilisques, Sackers, Falcons, Falconets, and divers other names not onely drawne from their figure and making, but also from the effects of their cruelty. Wherefore certainly I cannot sufficiently admire the wisdom of our Ancestors, who have so rightly accommodated them with names agreeable to their natures; as those who have not onely taken them from the swiftest birds of prey, as Falcons; but also from things most harmefull and hatefull to mankind, such as Serpents, Snakes, and Basilisks. That so wee might clearly discern, that these engines were made for no other purpose, nor with other intent, but onely to be imployed for the speedy and cruell slaughter of men; and that by onely hearing them named we might detest and abhorre them, as pernicious enemies of our lives. I let passe other engines of this offspring, being for their quantitie small, but so much the more pernicious and harmefull, for that they nearer assaile our lives, and may trayterously and forthwith seaze upon us not thinking nor fearing any such thing; so that we can scarce have any meanes of escape; such are Pistolls and other small hand-guns, which for shortnesse you may carry in your pocket, and so privily and suddainly taking them forth oppresse the careless and secure. Fowling peices which men usually carry upon their shoulders, are of the middle ranke of these engines, as also Muskets and Calcevers, which you cannot well discharge unlesse lying upon a Rest, which therefore may be called Breast-guns for that they are not laid to the cheeke, but against the Breast by reason of their weight and shortnesse; All which have beene invented for the commodity of footemen, and light horsemen. This middle sort of engine we call in Latine by a generall name *Sclopus*, in imitation of the sound, and the Italians who terme it *Sclopetere*; the French call it *Harquebuse*, a word likewise borrowed from the Italians, by reason of the touch-hole by which you give fire to the peice, for the Italians call a hole *Buzio*. It is tearmed, *Arum* (i) a Bow, for that at this present it holds the same place in martiall affaires, as the Bow did of old; and as the Archers formerly, so at this day the Musquetiers are placed in front. From the same wretched shoppe and magazine of cruelty, are all sorts of Mines, Countermines, pots of fire, traines, fiery Arrowes, Lances, Crossebowes, barrells, balls of fire, burning faggots, Granats, and all such fiery engines and Inventions, which closely stuffed with sewell and matter for fire, and cast by the defendants upon the bodies and Tents of the assailants, easily take fire by the violence of their motion. Certainly a most miserable and pernicious kinde of invention, whereby we often see a thousand of heedlesse men blowne up with a mine by the force of gunpowder; otherwhiles in the very heate of the conflict you may see the stoutest souldiers seazed upon with some of these fiery Engines, to burne in their harnesse, no waters being sufficiently powerfull to restraine and quench the raging and wathing violence of such fire cruelly spreading over the body and bowells. So it was not sufficient to have

armes,

armes, Iron and fire to mans destruction, unlesse also that the stroke might be more speedy, we had furnished them, as it were with wings, so to fly more hastily to our owne perdition, furnishing sithe-bearing death with wings so more speedily to oppress man, for whose preservation, all things contained in the world were created by God. Verily when I consider with my selfe all the sorts of warlike Engines, which the ancients used, whether in the field in set battells, as Bowes, Darts, Crosse-bowes, Slings; or in the assault of Citties, and shaking or overturning their walls, as Rammes, Horses, wooden towres, slings and such like; they seeme to me certaine childish sports and games made onely in imitation of the former. For these moderne inventions are such as easily exceede all the best appointed and cruell Engines which can bee mentioned or thought upon, in the shape, cruelty and appearance of their operations. For what in the world is thought more horrid or fearefull than thunder and lightning? and yet the hurtfulnesse of thunder is almost nothing to the cruelty of these infernall Engines; which may easily appeare by comparing together both their effects. Man alone of all creatures is not alwayes killed by being touched with thunder; but it immediatly killeth all other things which are subject to bee toucht therewith.

A comparison
of the ancient
weapons with
the moderne,

Plin. Lib. 2.
Cap. 59.

Nature bestowing this honour upon him, seeing so many creatures exceede him in strength: For all things ly contrary to man; and man, unlesse hee bee overthrowne with it, doth not dye thereof. But these fire-spitting Engines doe no more spare man, than they doe other creatures, and kill without difference from whence soever they come, whither soever they are carried, and howsoever they touch. There are many, but more are said to be the remedies against thunder; for beside the charmes whereby the ancient Romans did suppose they might be driven away, they never penetrate deeper into ground than five foote, therefore such as were fearefull thought the deeper Caves most safe. Of those things which grow out of the earth they doe not touch the Bay tree, and that was the cause that it was counted a signe of victory both in ancient and moderne times. Wherefore *Tiberius Caesar* otherwise a contemner of God and religion, as hee who indued with the Mathematicall sciences thought all things governed by fate, yet because hee exceedingly feared thunder, hee alwayes carried a Lawrell wreath about his necke when the aire was troubled, for that this kind of leafe is reported not to be touched by thunder. Some report that he made him tents of Seales skinnes, because it toucheth not this kinde of creature of all these things that live in the Sea, as neither the Eagle amongst birds, which for that is fained to be *Joves* squire. But on the contrary, charmes, the victorious Bay, the Seale or Sea-calse, the Eagle or any such thing profits nothing against the violence of these fiery Engines: no not a wall of tenne foote thicke will advantage. Lastly, this argues the immense violence of brasen Cannons above thunder, for that thunder may be disperfed and driven away with the noyse and ringing of Bells, the sounding of Trumpets, the tinkling of brasen kettles, yea also by the shooting of such great Ordinance; to wit, the clouds, by whose collision and fight the Thunder is caused, being disperfed by this violent agitation of the ayre, or else driven further to more remote parts of the skies. But their fury once provoked, is stayed by no opposition, appeased by no remedy. As there are certaine seasons of the yeare, so also there are certaine Regions of the earth, wherein Thunder is seldome or never heard. Thunders are rare in Winter and Summer, and that for contrary causes; for that in Winter the dense aire is thickned with a thicker coate of clouds, and the frosty and cold exhalation of the earth extinguisheth what fiery vapours soever it receives; which thing keepes *Scythia* and the cold countries about it free from Thunder. And on the contrary, too much heate preserves Egypt. For hot and dry exhalations of the earth are condensed into very thinne, subtil and weake clouds. But as the invention, so also the harme and tempest of great Ordinance, like a contagious pestilence is spread and rages over all the earth, and the skies at all times sound againe with their reports. The Thunder and Lightning commonly gives but one blow, or stroke, and that commonly strikes but one man of a multitude; But one great Cannon at one shot may spoyle and kill an hundred men. Thunder, as a thing naturall falls by chance, one while upon an high oake, another while upon the top of a moun-

Plin. Lib. 2.
Cap. 59.

Sueton. in
Tiberio.

The wondrous
force of
great Ordinance.

Plin. Lib. 2.
Cap. 50.

taine,

raine, and somewhiles on some lofty towre, but seldome upon man. But this hellish Engine tempered by the malice and guidance of man, assailes man onely, and takes him for his onely marke, and directs his bullets against him. The Thunder by its noyse as a messenger sent before, foretells the storme at hand; but, which is the chiefe mischief, this internall Engine roares as it strikes, and strikes as it roares, sending at one and the same time the deadly bullet into the breast, and the horrible noyse into the eare. Wherefore we all of us rightfully curse the author of so pernicious an Engine; on the contrary praise those to the skies, who endeavour by words and pious exhortations to dehort Kings from their use, or else labour by writing and operation to apply fit medicines to wounds made by these Engines. Which hath moved me, that I have writtē hereof almost with the first of the French. But before I shall doe this, it seemeth not amisse, so to facilitate the way to the treatise I intend to write of wounds made by Gunshot, to premise two Discourses, by which I may confute and take away certaine erronious opinions which have possessed the mindes of divers; for that unlesse these be taken away, the essence and nature of the whole disease cannot be understood, nor a fitting remedy applied by him which is ignorant of the disease.

The arguments of the following discourses.

The first Discourse which is dedicated to the Reader, refells and condemnes by reasons and examples the method of curing prescribed by *Iohn de Vigo*, whereby he cauterizes the wounds made by Gunshot, supposing them venenate, and on the contrary proves that order of curing with is performed by suppuratives, to be so salutary and gentle, as that prescribed by *Vigo* is full of error and cruelty.

The second dedicated to the King, teaches that the same wounds, are of themselves voyd of all poison, and therefore that all their malignity depends upon the fault of the aire, and ill humours predominant in the bodies of the patients.



THE FIRST DISCOVRSE, VVHEREIN VVOVNDVS MADE BY GVNSHOT, ARE FREED FROM BEING BVRNT, OR CAUTERIZED ACCOR- ding to *Vigoes* Methode.



IN the yeare of our Lord 1536. *Francis* the French King, for his acts in warre and peace stiled the Great, sent a puissant Army beyond the Alpes, under the government and leading of *Annas* of Mommorancie high Constable of France, both that he might relieve *Turin* with victualls, souldiers, and all things needefull, as also to recover the Citties of that Province taken by the Marquis of *Guaft* Generall of the Emperours forces. I was in the Kings Army the Chirurgeon of Monsieur of *Montejan* Generall of the foote. The Imperialists had taken the straits of *Suze*, the Castle of *Villane*, and all the other passages; so that the Kings army was not able to drive them from their fortifications but by fight. In this conflict there were many wounded on both sides with all sorts of weapons, but chiefly with bullets. I will tell the truth, I was not very expert at that time in matters of Chirurgery; neither was I used to dresse wounds made by Gunshot. Now I had read in *Iohn de Vigo* that wounds made by Gunshot were venenate or poisoned, and that by reason of the Gunpowder, Wherefore for their cure, it was expedient to burne or cauterize them with oyle of Elders scalding hot, with a little Treacle mixed there-
with.

with. But for that I gave no great credite neither to the author, nor remedy, because I knew that causticks could not be powred into wounds, without excessive paine; I, before I would runne a hazard, determined to see whether the Chirurgions, who went with me in the army, used any other manner of dressing to these wounds. I observed and saw that all of them used that Method of dressing which *Vigo* prescribes; and that they filled as full as they could, the wounds made by Gun-shot with Tents and pledgets dipped in this scalding Oyle, at the first dressings; which encouraged me to doe the like to those, who came to be dressed of me. It chanced on a time, that by reason of the multitude that were hurt, I wanted this Oyle. Now because there were some few left to be dressed, I was forced, that I might seeme to want nothing, and that I might not leave them undrest, to apply a digestive made of the yolke of an egge, oyle of Roses, and Turpentine. I could not sleepe all that night, for I was troubled in minde, and the dressing of the precedent day, (which I judged unfit) troubled my thoughts; and I feared that the next day I should finde them dead, or at the point of death by the poyson of the wound, whom I had not dressed with the scalding oyle. Therefore I rose early in the morning, I visited my patients, and beyond expectation, I found such as I had dressed with a digestive onely, free from vehemencie of paine to have had good rest, and that their wounds were not inflamed, nor tumified; but on the contrary the others that were burnt with the scalding oyle were feaverish, tormented with much paine, and the parts about their wounds were swolne. When I had many times tryed this in divers others, I thought thus much, that neither I nor any other should ever cauterize any wounded with Gun-shot. When wee first came to *Turin*, there was there a Chirurgeon farre more famous than all the rest in artificially and happily curing wounds made by Gun-shot; wherefore I laboured with all diligence for two yeeres time to gaine his favour and love, that so at the length, I might learne of him, what kinde of Medicine that was, which he honoured with the glorious tittle of Balsame, which was so highly esteemed by him, and so happy and succesfull to his patients; yet could I not obtaine it. It fell out a small while after that the Marshall of *Montejan* the Kings Leiftenant, Generall there in *Piemont* dyed, wherefore I went unto my Chirurgeon, and told him that I could take no pleasure in living there, the favourer and *Mecenas* of my studies being taken away; and that I intended forthwith to returne to *Paris*, and that it would neither hinder, nor discredit him to teach his remedy to me, who should be so farre remote from him. When he heard this, he made no delay, but presently wished mee to provide two Whelpes, 1 pound of earth-wormes, 2 pounds of oyle of Lillyes, sixe ounces of Venice Turpentine, and one ounce of *aqua vite*. In my presence he boyled the Whelpes put alive into that oyle, untill the flesh came from the bones, then presently he put in the Wormes, which he had first killed in white wine, that they might so be cleaved from the earthy drosse wherewith they are usually replete, and then hee boyled them in the same oyle so long, till they became dry, and had spent all their juyce therein: then hee strayned it through a towell without much pressing; and added the Turpentine to it, and lastly the *aqua vite*. Calling God to witnesse, that he had no other Balsame, wherewith to cure wounds made with Gunshot, and bring them to suppuration. Thus he sent me away as rewarded with a most pretious gift, requesting me to keepe it as a great secret, and not to reveale it to any.

What chance
may doe in
finding out of
remedies.

The description
on of oyle of
Whelpes.

When I came to *Paris*, I went to visite *Silvius* the Kings professor of Physicke well knowne by name to all schollers for his great learning; he kept me long that so I might dine with him, and diligently enquires of me, if I had observed any new Method of curing wounds made by Gun-shot, and combustions occasioned by Gun-powder. Then I affirmed to him that Gun-powder did not participate any thing of poyson, for that none of these things, whereof it is compounded are poysonous; which reason ought to free the whole composition from suspicion of poyson. And that experience confirmed this reason, for I had seene many soldiers, who would drinke a great quantity of this powder with wine, because they were perswaded, that this drinke would free them from malignant symptomes when they were wounded, yet I give no credit to this perswasion, and lastly for that many with-

Gun-powder
not poysonous.

Bullets shot
out of a Gun
doe not burne.

out any harme, strew this powder upon rebellious ulcers. For the Bullets, I affirme, that they cannot conceive such heate, as to become causticke. For if you shoot them out of a Gun against a hard stone, yet you may presently take them up without any harme in your hands, though by striking upon the stone, they should become more hot. For the combustions caused by Gunpowder, I observed no speciall nor peculiar remedy, which might make their cure different from other combustions. To which purpose I related this ensuing history.

A Historie

A medicine
hindring blis-
string in
burnes, or
scalds.

One of the Marshall of *Montejan* his Kitchin boyes, fell by chance into a Caldron of Oyle being even almost boyling hot; I being called to dresse him, went to the next Apothecaries to fetch refrigerating medicines commonly used in this case: there was present by chance a certaine old countrey woman, who hearing that I desired medicines for a burne, perswaded mee at the first dressing, that I should lay to raw Onions beaten with a little salt; for so I should hinder the breaking out of blisters or pustules, as shee had found by certaine and frequent experience. Wherefore I thought good to try the force of her Medicine upon this greasy scullion. I the next day found those places of his body whereto the Onions lay, to bee free from blisters, but the other parts which they had not touched, to be all blistered.

A Historie.

It fell out a while after, that a German of *Montejan* his guard had his flasque full of Gunpowder set on fire, whereby his hands and face were grievously burnt: I being called, laid the Onions beaten as I formerly told you, to the middle of his face, and to the rest I laid medicines usually applied to burnes. At the second dressing I observed the part dressed with the Onions quite free from blisters and excoriation, the other being troubled with both; whereby I gave credit to the Medicine. Besides also, I lastly told him this, that I had observed, that that was the readiest to draw forth bullets shot into the body, which sets the patients in the same posture and site, as hee was when hee received his hurt. Which things when I had told him, together with many other handled at large in this worke, the good old man requested mee to publish in print my opinions concerning these things, that so the erroneous and hurtfull opinion of *Vigo* might bee taken out of mens minds. To whose earnest entreaty when I had assented, I first of all caused to be drawne and carved many Instruments fit to draw forth Bullets and other strange bodies; then a short while after I first published this worke in the yeare of our Lord 1545. which when I found to bee well liked and approved by many, I thought good to set it forth the second time somewhat amended in the yeare 1552. And the third time augmented in many particulars in the yeare 1564. For I having followed many warres, and deteined as Chirurgeon in besieged Cities, as *Mets* and *Hesdin*, had observed many things under five Kings, whom I served with diligence and content. I had learnt many things from most expert Chirurgeons, but more from all learned Physitions, whose familiarity and favour for that purpose I alwayes laboured to acquire with all diligence and honest Arts; that so I might become more learned and skillfull by their familiarity and discourse, if there was any thing especially in this matter and kind of wounds, which was hid from me, or whereof I was not well assured. Of which number I have knowne very few, who any thing seene in this kind of operation eyther by study, or experience in Warres, who have not thought that wounds made by Gunshot ought to be dressed at the first with suppurative medicines, and not with scalding and Causticke Oyle.

Wounds made
by Gunshot
must be dress-
ed with sup-
puratives.

The causes of
difficultie in
this cure.

For this I affirme, which then also I testified to this good man, that I have found very many wounds made in the fleshy parts by Gunshot, as easily cured as other wounds, which bee made by contusing things. But in the parts of the body where the bullet meets with bones and nervous particles, both because it teares and rends into small peeces those things which resist, not onely where it rouches, but further also, through the violence of the blow, therefore it causerh many and greivous symptomes, which are stubborne and difficult, and oft times impossible to cure, especially in bodies replete with ill humors, in an ill constitution of the heaven and ayre, such as is hot, moyst and foggy weather,

ther, which therefore is subject to putrifaction; and in like manner a freezing and cold season, which uses to mortifie the wounded parts not onely of those that are hurt with Bullets, but in like sort with any other weapon; nor onely in bony and nervous particles, but also in musculous. Whereby you may understand, that the difficulty of curing proceeds not from the venenate quality of the wounds, nor the combustion made by the Gunpowder, but the foulness of the patients bodies, and the unseasonableness of the aire.

For prooffe whereof, I will set downe, that which I not long agoe observed in a *A Historie*, Scottish Nobleman the Earle of *Gordon*, Lord of *Achindon*, whom I cured at the appointment of the Queene Mother. He was shot through both his thighs with a Pistoll, the bone being not hurt nor touched; and yet the 32. day after the wound he was perfectly healed, so that hee had neither feaver nor any other symptome which came upon the wound. Whereof there are worthy witnesses, the Archbishop of *Glasco*, the Scottish Embassadour, *Francis Brigart* and *John Altine*, Doctors of Physicke, as also *James Guillemeau* the Kings Chirurgeon, and *Giles Buzet* a Scottish Chirurgeon, who all of them wondred that this Gentleman was so loone healed, no acride medicine being applyed. This I have thought good to recite and set downe, that the Readers may understand, that I for 30. yeares agoe had found the way to cure wounds made by Gunshot, without scalding oyle or any other, more acrid medicine; unlesse by accident the illness of the patients bodies and of the aire caused any malignant symptomes, which might require such remedies besides the regular and ordinary way of curing, which shall bee more amply treated of in the following discourse.

What makes
Chirurgions
sometimes use
causticks in
curing
wounds made
by Gunshot.



ANOTHER DISCOURSE OF THESE THINGS, WHICH KING CHARLES THE NINTH, RE- turning from the expedition and taking of *Rouen*, enquired of me concerning wounds made by Gunshot.



Or that it pleased your Majestie one day, together with the Queene Mother, the Prince of the *Roche upon Ton*, and many other Noble-men and Gentlemen, to enquire of mee, what was the cause that the farre greater part of the Gentlemen and common Souldiers which were wounded with Guns, and other warlike Engines, all remedies used in vaine, either dyed, or scarce and that with much difficultie recovered of their hurts, though in appearance they were not very great, and though the Chirurgions diligently performed all things

The occasion
of writing
this discourse,

requisite in their Art; I have made bold to premise this Discourse to that Tractate which I determine to publish concerning wounds made by Gunshot; both to satisfie the desires of the Princes and of many Gentlemen, as also the expectation they have of mee, as being the Kings chiefe Chirurgeon, (which place being given me by *Henry* the second, *Charles* the ninth, a sonne most worthy of such a father, had confirmed) neither make I any question, but that many who too much insist upon their owne judgement, and not thoroughly consider the things themselves, will

The argument
of this dis-
course.

marvaile, and thinke it farre from reason; that I departing from the steps of my ancestors, and dissenting wholly from the formerly received opinions, am farre from their Tenents, who lay the cause of the malignitie of wounds made by Gunshot, upon the poyson brought into the body by the Gunpowder, or mixed with the Bullets whilst they are tempered or cast. Yet for all this, if they will courteously and patiently weigh my reasons, they shall eyther thinke as I doe, or at least shall judge this my endeavour and paines taken for the publike good, not to be condemned nor contemned.

Gunpowder is
not poyson
nous,

For I shall make it evident by most strong reasons drawne out of the writings of the Ancient both Philosophers and Physitions, and also by certaine experiments of mine owne, and other Chirurgions, that the malignitie and contumacie which we frequently meete withall in curing wounds made by Gunshot, is not to be attributed eyther to the poyson carryed into the body by the Gunpowder or Bullet, nor to burning imprinted in the wounded part by the Gunpowder. Wherefore to come to our purpose, that opinion must first bee confuted, which accuseth wounds made by Gunshot of poyson; and wee must teach, that there is neither any venenate substance, nor qualitie in Gunpowder, neyther if there should bee any, could it empoison the bodies of such as are wounded. Which that wee may the more easily performe, wee must examine the composition of such powder, and make a particular enquiry of each of the simples, whereof this composition consists, what essence they have, what strength and faculties, and lastly what effects they may produce. For thus by knowing the simples, the whole nature of the composition consisting of them, will bee apparently manifest.

Of what it
is made.

The simples which enter the composition of Gunpowder are onely three, Charcoales of Sallow or Willow, or of Hempe stalkes, Brimstone, and salt Peter, and sometimes a little *aqua vita*. You shall finde each of these, if considered in particular, voide of all poyson and venenate quality. For first, in the Char-coale you shall observe nothing but drynesse, and a certaine subtlety of substance, by meanes whereof it fires so suddainly, even as Tinder. Sulphur or Brimstone is hot and dry, but not in the highest degree, it is of an oily and viscid substance, yet so that it doth not so speedily catch fire as the coale, though it reteine it longer being once kindled, neither may it be so speedily extinguished. Salt Peter is such, that many use it for Salt, whereby it is evidently apparent that the nature of such simples is absolutely free from all poyson; but chiefly the Brimstone, (which notwithstanding is more suspected than the rest.) For *Dioscorides* gives Brimstone to be drunke, or supped out of a reare Egge to such as are Asthmaticke, troubled with the Cough, (spit up purulent matter, and are troubled with the yellow laundise.) But *Galen* applies it outwardly to such as are bitten by venomous Beasts, to scabs, teaters, and leprosy. For the *aqua vita*, it is of so tenuious a substance that it presently vanisheth into aire, and also very many drinke it, and it is without any harme used in frictions of the exteriour parts of the body. Whence you may gather, that this powder is free from all manner of poyson, seeing these things whereof it consists and is composed, want all suspicion thereof.

Lib. 5. Cap. 73.
Lib. 9. simpl.
Cap. 36.

Bullets cannot
be poysoned.

Therefore the Germane horsemen, when they are wounded with shot, feare not to drinke off cheerefully halfe an ounce of Gunpowder dissolved in wine; hence perswading themselves freed from such maligne symptomes as usually happen upon such wounds; wherein whether they doe right or wrong I doe not here determine; the same thing many French Souldiers forced by no necessity, but onely to shew themselves more couragious, also doe without any harme; but divers with good successe use to strew it upon ulcers, so to dry them. Now to come to these, who thinke that the venenate quality of wounds made by Gunshot, springs not from the powder, but from the Bullet wherewith some poyson hath beene commixt or joyned, or which hath beene tempered or steeped in some poysonous liquor.

This may sufficiently serve for a reply; that the fire is abundantly powerfull to dissipate all the strength of the Poyson, if any should bee poured upon

or added to the Bullet. This much confirms mine opinion, which every one knowes; The Bullets which the Kings souldiers used to shoote against the Townesmen in the siege of Rouen, were free from all poyson; and yet for all that they of the Towne thought that they were all poysoned, when they found the wounds made by them, to be incurable and deadly. Now on the other side the Townesmen were falsely suspected guilty of the same crime by the Kings Army, when as they perceived all the Chirurgions labour in curing the wounds made by the Bullets shot from Rouen, to be frustrated by their contumacy and maligne nature; each side judging of the magnitude and malignitie of the cause from the unhappy successe of the effect in curing. Even as amongst Physitions according to *Hippocrates*, all diseases are termed pestilent, which arising from whatsoever common cause, kill many people; so also wounds made by Gunshot, may in some respect be called pestilent, for that they are more refractory, and difficult to cure than others, and not because they partake of any poysonous qualitie, but by default of some common cause, as the ill complexions of the patients, the infection of the aire, and the corruption of meats and drinckes. For by these causes wounds acquire an evill nature and become lesse yeelding to medicines. Now we have by these reasons convinced of errour that opinion which held wounds made by Gunshot for poysonous; let us now come to overthrow that which is held concerning their combustion.

First it can scarce be understood how bullets which are commonly made of Lead, can attaine to such heate, but that they must be melted; and yet they are so far from melting, that being shot out of a Musket they will peirce through an armour and the whole body besides, yet remaine whole, or but a little diminisht. Besides also if you shoote them against a stone wall, you may presently take them up in your hand without any harme, and also without any manifest sence of heate; though their heate by the striking upon the stone should bee rather encreased, if they had any.

Furthermore, a Bullet shot into a barrell of Gunpowder, would presently set it all on fire, if the Bullet should acquire such heate by the shooting, but it is not so. For if at any time the powder be fired by such an accident, wee must not imagine that it is done by the bullet bringing fire with it, but by the striking and collision thereof against some Iron, or stone that opposes or meets therewith, whence sparkes of fire proceeding as from a flint, the powder is fired in a moment. The like opinion wee have of thatched houses, for they are not fiered by the bullet which is shot, but rather by some other thing as linnen ragges, browne paper, and the like, which rogues and wicked persons fasten to their Bullets. There is another thing which more confirms mee in this opinion, which is; take a bullet of Waxe, and keepe it from the fire, for otherwise it would melt, and shoote it against an inch board, and it will goe through it; whereby you may understand that Bullets cannot become so hot by shooting, so burne like a cautery. But the Orifices (may some say) of such wounds are alwayes blacke. This indeede is true, but it is not from the effect of heate brought thither by the Bullet, but the force of the contusion.

Now the contusion is exceeding great, both because the Bullet is round, and enters the body with incredible violence. Of which those that are wounded will give you sufficient testimony, for there is none of them, which thinks not presently upon the blow, that as it were some post, or thing of the like weight, falls upon the affected member, whence great paine and stupiditie possesse the part, whereby the native heate and spirits are so much dissipated, that a Gangreen may follow.

But for the Eschar which they affirme is made by the blow, and falls away afterwards, they are much mistaken. For certaine particles of the membranes and flesh contused and torne by the violence of the Bullet beguiles them; which presently putrifying are severed from the sound parts by the power of nature and the separating heate, which thing usually happens in all great Contusions. But for all that these so many and weighty reasons may free the Powder from all suspicion of Poison, and the Bullet from all thought of burning;

As Galen
notes ad sent.
20. et 21. se⁸.
3. lib. 3. Epid.

Wounds made
by Gunshot
are not burnt

The reason
why wounds
made by Guns
shot looke
blacke.

The reasons of
our adversar-
ies refelled.

Quæst. nat.
lib. 2. cap. 42.

The stinking
smell of light-
ning.

Lib. 2. cap. 51.

The wonder-
full nature of
some light-
ning.

A Historie

Why the
wounds made
by Gunshot
some few
yeares agoe
were so dead-
ly.

yet there are many who insisting upon Philosophicall arguments, raise new stirrs. For (say they) the discharging a peice of Ordinance is absolutely like Thunder and Lightning, which the rent and torne clouds cast from the middle region, upon the earth; wherefore the Iron bullet which is shot out of the Cannon must needs have a venenate and burning faculty. I am not ignorant that Lightnings generated of a grosse and viscous exhalation, breaking the cloud wherewith it is encompassed, never falls upon the earth, but brings fire with it, one while more subtile, another while more grosse, according to the various condition of the matter whence the exhalation hath arisen. For *Seneca* writes that there are three severall kinds of Lightning differing in burning, condition and plenty. One of them penetrates or rather perforates by the tenuity of the matter of the objects which it touches. The other with a violent impetuosity breakes insunder and dissipates the objects, by reason it hath a more dense, compact and forcible matter, like as Whirlewinds have. The third, for that it consists of a more terrestriall matter, burnes what it touches, leaving behind it the impression of the burning. Also I know that Lightning is of a pestilent and stinking nature, occasioned by the grossenesse and viscosity of the matter whereof it is; which matter taking fire sends forth so lothsome and odious a smell that the very wilde-beasts cannot endure it; but leave their Dennes, if they chance to be touched with such a lightening. Besides also, we have read in the northerne history of *Olaus Magnus*, that in some places after a Lightning, you shall finde a whole plaine spread over with Brimstone, which Brimstone notwithstanding is extinguished, unprofitable & of no efficacie. But grant these things be thus, yet must we not therefore conclude, that the Bullets of the great Ordinance carry poyson and fire with them into the wounds. For though there be many things like in Lightning and discharging great Ordinance, yet they have no similitude either in matter or substance, but onely in effects whereby they shake, breake insunder and disperse the bodies which withstand them; For Lightning and Thunder doe it by meanes of fire, and oft times of a stone generated in them, which is therefore tearmed, a Thunderbolt; But Ordinance by the bullet carried by the force of the aire, more violently driving and forcing it forwards; Neither if any should by more powerfull arguments force me to yeeld that the matter of Lightning and shooting of Ordinance are like, yet will I not therefore be forced to confesse that wounds made by Gunshot are combust. For according to *Pliny*, there are some Lightnings which consisting of a most dry matter, doe shatter in sunder all that withstands them, but doe not burne at all; others which are of somewhat a more humid nature, burne no more than the former, but onely blacke such things as they touch; Lastly othersome of a more subtile and tenuous matter, whose nature (as *Seneca* saith) wee must not doubt to be divine, if but for this reason, that they will melt gold and silver, not harming the purse; a sword, not hurting the scabbard; the head of a Lance, not burning the wood, and shed wine not breaking the vessell. According to which decree I can grant, that these Lightnings which breake in sunder, melte and dissipate, and performe other effects so full of admiration, are like in substance to the shot of great Ordinance; but not these which carry with them fire and flame.

In proote whereof there comes into my minde the historie of a certaine Souldier, out of whose thigh I remember I drew forth a Bullet wrapped in the taffety of his breeches, which had not any signe of tearing or burning. Besides, I have scene many who not wounded, nor so much as touched, yet notwithstanding have with the very report & winde of a Cannon bullet, sliding close by their eares, fallne downe for dead, so that their members becomming livid & black, they have dyed by a Gangrene ensuing thereupon. These and such effects are like the effects of Lightnings which wee lately mentioned, and yet they beare no signe nor marke of poyson. From whence I dare now boldly conclude, that wounds made by Gunshot are neither poysoned, nor burnt. But seeing the danger of such wounds in these last civill warres hath beene so great, universall and deadly to so many worthy personages and valiant men, what then may have beene the cause thereof, if it were neither combustion, nor the venenate qualitie of the wound? This must wee therefore now insist upon and somewhat hardily explaine.

Those

Those who have spent all their time in the learning and searching out the mysteries of Naturall Philosophie, would have all men thinke and beleeeve, that the foure Elements have such mutuall sympathy, that they may bee changed each into other; so that they not onely undergoe the alterations of the first qualities which are heate, coldnesse, drynesse and moisture, but also the mutation of their proper substances by rarefaction and condensation. For thus the fire is frequently changed into ayre, the ayre into water, the water into aire, and the water into earth; and on the contrary, the earth into water, the water into aire, the aire into fire; because these 4. first bodies have in their common matter enjoyed the contrary and fighting, yet first and principall qualities of all.

Whereof we have an example in the * Ball-bellows brought out of Germany, which are made of brasse, hollow and round; and have a very small hole in them, whereby the water is put in, and so put to the fire; the water by the action thereof is rarified into aire, and so they send forth winde with a great noyse, and blow strongly as soone as they grow thoroughly hot. You may try the same with Chesnuts, which cast whole and undivided into the fire, presently fly asunder with a great cracke; because the watry and innate humidity turned into winde by the force of the fire, forcibly breakes his passage forth. For the aire or winde raised from the water by rarification, requires a larger place, neither can it now bee contained in the narrow filmes, or skinnes of the Chesnut, wherein it was formerly kept. Just after the same manner Gunpowder being fiered, turns into a farre greater proportion of ayre, according to the truth of that Philosophicall proposition, which saith, Of one part of earth, there are made ten of water; of one of water, ten of aire; and of one of aire are made ten of fire. Now this fire not possible to be pent in the narrow space of the peice, wherein the powder was formerly contained, endeavours to force its passage with violence, and so casts forth the Bullet lying in the way, yet so that it presently vanishes into aire, and doth not accompany the Bullet to the marke, or object, which it batters, spoiles and breakes asunder. Yet the Bullet may drive the obvious aire with such violence, that men are often sooner touched therewith than with the bullet, and dye by having their bones shattered and broken without any hurt on the flesh which covers them; which as wee formerly noted, it hath common with Lightning. We finde the like in Mines, when the powder is once fiered, it remooves and shakes even mountaines of earth.

In the yeare of our Lord 1562 a quantity of this powder which was not very great, taking fire by accident in the Arcenall of Paris, caused such a tempest, that the whole Citty shoke therewith, but it quite overturned divers of the neighbouring houses, and shooke off the tyles and broke the windowes of those which were further off; and to conclude, like a storme of Lightning it laid many here and there for dead, some lost their sight, others their hearing, and other some had their limbes torne asunder, as if they had beene rent with wilde horses; and all this was done by the onely agitation of the aire into which the fiered Gunpowder was turned; Just after the same manner as windes pent up in hollow places of the earth which want vents. For in seeking passage forth, they vehemently shake the sides of the Earth, and raging with a great noise about the cavities, they make all the surface thereof to tremble; so that by the various agitation one while up, another downe, it overturnes or carries it to another place. For thus we have read that *Megara* and *Agina* anciently most famous Citties of Greece, were swallowed up and quite overturned by an earthquake; I omit the great blusterings of the windes striving in the cavities of the earth, which represent to such as heare them at some distance, the fierce assailing of Citties, the bellowing of Bulles, the horrid roarings of Lions, neither are they much unlike to the roaring reports of Cannons. These things being thus premised let us come to the thing we have in hand.

Amongst things necessary for life, there is none causes greater changes in us than the aire; which is continually drawne into the Bowells appointed by nature, and whether we sleepe, wake, or what else soever we doe, we continually draw in, and breath it out. Through which occasion *Hippocrates* calls it Divine, for that breathing through this mundane Orbe, it embraces, nourishes, defends and keepe in quiet peace all things

The cause of the transmutation of the Elements.

* These bellows here mentioned by the Author, are Bals made of Brasse in forme of a pearce, with a very small hole in their lesser ends: when you would fill them with water you must heate them very hot, and so the aire which is contained in them will be exceedingly rarified, which by putting them presently into water will be condensed as much, and so will draw in the water to supply the place, *ne desur Sacrum*. Then put them into the fire, and it againe rarifying the water into aire will make them yeelde a strong continued and forcible blast. The cause of the report and blow of a Cannon. A Historie. The cause of an Earthquake.

How the aire
becomes hurt-
full.

Apher. 17.
sect. 3.

Flesh quickly
putrifies in
maritime pla-
ces.

things contained therein, friendly conspiring with the starres from whom a divine vertue is infused therein. For the aire diversly changed and affected by the starres, doth in like manner produce various changes in these lower mundane bodies. And hence it is that Philosophers and Physitions doe so seriously wish us to behold and consider the culture and habite of places, and constitution of the aire, when they treat of preserving of health, or curing diseases. For in these the great power and dominion of the aire is very apparent, as you may gather by the foure seasons of the year; for in summer the aire being hot and dry, heats and dries our bodies; but in winter it produceth in us the effects of winters qualities, that is, of cold and moisture; yet by such order and providence of nature, that although according to the varieties of seasons our bodies may be variously altered, yet shall they receive no detriment thereby, if so be that the seasons retaine their seasonableness; from whence if they happen to digresse, they raise and stirre up great perturbations both in our bodies and mindes; whose malice we can scarce shunne, because they encompass us on every hand, and by the law of nature enter together with the aire into the secret cabinets of our bodies both by occult and manifest passages. For who is he, that doth not by experience finde both for the commodity and discommodity of his health, the various effects of winds, (wherewith the aire is commixt) according as they blow from this or that Region, or Quarter of the world. Wherefore seeing that the South winde is hot and moist; the North wind cold and dry; the East wind cleare and fresh; the West winde cloudy; it is no doubt but that the aire which we draw in by inspiration carries together therewith into the bowells the qualities of that winde which is then prevalent. When wee reade in *Hippocrates*, that changes of times whether they happen by different windes, or vicissitude of seasons, chiefly bring diseases; For northerly winds doe condense, and strengthen our bodies, and makes them active, well coloured and daring, by resuscitating and vigorating the native heate. But southerne windes resolve and moisten our bodies, make us heavy, headed, dull the hearing, cause giddinesse, and make the eyes and body lesse agile; as the Inhabitants of *Narbon* finde to their great harme, who are otherwise ranked among the most active people of France. But if wee would make a comparison of the seasons and constitutions of a year, by *Hippocrates* decree Droughts are more wholesome and lesse deadly than Raines; I judge for that too much humiditie is the mother of putrefaction, as you learne by these countries which are blowne upon by a winde from Sea: For in these flesh which is kept for foode, putrefies in the space of an houre; and such ulcers as in other places are easily and quickly healed, doe there by the conflux and collection of matter become inveterate and contumacious. Therefore as when the seasons of the year successively fall out agreeable to their nature, and when each season is seasonable, then either we are not sicke at all, or assuredly with lesse danger. So on the contrary the perfect constitution and health of our bodies becomes worse and decays, when the seasons of the year are depraved and perverted in time and temper.

Now seeing that these many yeares the foure seasons of the year have wanted their seasonableness, the summer wanting his usuall heate, and the winter its cold, and all things by moisture and the dominion of the southerne windes have beene humid and languide; I thinke there is none so ignorant in naturall Philosophie and Astrologie, who will not thinke that the causes of the malignitie and contumacie of those diseases which have so long afflicted all France, are not to bee attributed to the aire and Heavens. For otherwise, whence have so many pestilent and contagious diseases tyrannized over so many people of every age, sex and condition? whence have so many catarrhes, coughs and heavinesses of the head, so many pleurisies, tumors, small poxes, meazells, and Itches not admitting of digestion and remedies prescribed by Art? Whence have we had so many venomous creatures, as Toades, Grasshoppers, Caterpillers, Spiders, Wasps, Hornets, Beetles, Snailles, Vipers, Snakes, Lizards, Scorpions and Efts or Nutes, unlesse from excessive putrefaction which the humidity of the aire, our native heate being liquid and dull, hath caused in us, and the whole kingdome of France? Hence also procedes the infirmity of our native heate, and the corruption of the blood and humors whereof we consist, which

the

the rainy Southwind hath caused with its sultry heate. Wherefore in these last yeares I have drawne little blood, which hath not presently shewed the corruption of its substance by the blacke or greenish colour, as I have diligently observed in all such as I have bled, by the direction of Physicians, either for prevention of future, or cure of present diseases. Whence it comes to passe that the fleshy substance of our bodies could not but be faulty both in temper and consistence; seeing that the blood whence it is generated had drawne the seeds of corruption from the defiled aire. Whence it fell out, that the wounds which happened with losse of substance, could be scarce healed or united, because of the depraved nature of the blood. For so the wounds and ulcers of these which are troubled with the Droptic, whose blood is more cold or wholly waterish; so of Leprous persons, whose blood is corrupt, and lastly of all such as have their bodies replete with ill juice, or else are Cachecticke, will not easily admit of cure. Yea assuredly if but the very part which is hurt swerve from its native temper, the wound will not easily be cured.

In what sort
dies ulcers and
wounds are
not easily
cured.

Therefore seeing all these things, both the putrefaction of the Aire, and depraved humors of the body, and also the distemper of the affected parts conspired together to the destruction of the wounded, what marvaile was it, if in these late civil wars, the wounds which were for their quantity small, for the condition of the wounded parts but little, have caused so many and grievous accidents and lastly death it selfe? Especially, seeing that the Aire which encompasseth us, tainted with putrefaction corrupts and defiles the wounds by inspiration and expiration, the body and humours being already disposed, or inclined to putrefaction.

Now there came such a stinke, which is a most assured signe of putrefaction, from these wounds when they were dressed, that such as stood by could scarce endure it, neither could this stinke be attributed to the want of dressing, or fault of the Chirurgeon; for the wounds of the Princes and Nobility stunk as ill as these of the common Souldiers. And the corruption was such, that if any chanced to be undrest for one day, which sometimes happened amongst such a multitude of wounded persons, the next day the wound would be full of wormes. Besides also, which furthermore argues a great putrefaction of humors, many had Abscesses in parts opposite to their wounds, as in the left knee, when as the right shoulder was wounded; in the left arme, when as the right Leg was hurt. Which I remember befell the King of Navarre, the Duke of Newers, the Lord Rendan and divers others. For all men had nature so overcharged with abundance of vicious humors, that if it expelled not part thereof by impostumes to the habite of the body, it certainly otherwise disposed of it amongst the inner parts of the body; for in dissecting dead bodies, wee observed that the Spleene, Liver, Lungs, and other Bowells were purulent, and hence it was that the patients by reason of vapours sent from them to the heart were troubled with continuall feavers. But the Liver and all the veinous parts being polluted, and so the generation of the laudible blood hindered, they languished for want of fitting nourishment. But when the Braine by vapours was drawne in to sympathize with the rest, they were molested with Ravings and Convulsions. Wherefore if any thing succeeded unprosperously in so great malignancie of wounds, the Chirurgeon was not to be blamed, for that it were a crime to fight against God and the Aire, wherein the hidden scourges of the divine justice lye hid. Therefore, if according to the minde of the great Hippocrates, who commands to bring all contused wounds to suppuration, that so they may be healed, wee endeavoured to cure with such medicines wounds made with Gunshot, and therefore contused; who can rightly be angry with us, if we performed it not so well, by reason of these putrefactions, gangreens and mortifications which proceeded from the corrupt Aire, for all that we used not onely suppuratives, but were oft times forced to use other medicines; so long turning aside from the cure of the disease, untill we had overcome the symptoms which much endanger the patient and customarily happen upon such wounds, as also upon those which are made with a sword or any other kind of weapon; As shall plainly appeare in the following treatise, to which it now seemes high time that we betake our selves.

An argument
of great putrefaction of the
humors.

All contused
wounds must
bee brought to
suppuration.

CHAP. I.

A division of wounds drawne from the variety of the wounded parts, and the Bullets which wound.

A division of wounds from the variety of the wounded parts.

From the difference of Bullets.

Wounds made by Gunshot are usually round.

Wounds which are made in mans body by Gunshot, whether simple or compound, are accompanied with contusion, dilaceration, distemper and swelling. I say, all these possesse eyther the noble parts, or ignoble, the fleshy, nervous or bony, some whiles with rending and tearing asunder the larger vessels, sometimes without harming them. Now these wounds are onely superficial, or else peirce deepe and passe quite through the body. But there is also another division of these wounds taken from the variety of the Bullets wherewith they are made. For some bullets are bigger, some lesse, some betweene both, they are usually made of Lead, yet sometimes of Steele, Iron, Brasse, Tinne, scarce any of Silver, much lesse of Gold. There arises no difference from their figure; for almost all kinds of wounds of this nature are round. From these differences, the Chirurgion must take his Indications what to doe, and what medicines to apply. The first care must be, that he thinke not these horrid and maligne symptomes, which usually happen upon these kinds of wounds, to arise from combustion, or poyson carried with the Bullet into the wounded part, and that for these reasons we have formerly handled at large. But rather let him judge they proceede from the vehemencie of the contusion, dilaceration and fracture, caused by the Bullets too violent entry into the nervous and bony bodies. For if at any time the bullet shall onely light upon the fleshy parts, the wounds will be as easily cured, as any other wound usually is, which is made with a contusing and round kind of weapon, as I have often found by frequent experience, whilest I have followed the warres, and performed the part of a Chirurgion to many Noble-men and common Souldiers, according to the counsell of such Physicians as were there overseers of the cure.

CHAP. II.

Of the signes of wounds made by Gunshot.

Signes of wounds from their figure. From their colour. From the feeling the blow.

From the bleeding.

From the heate of the wound.

Wounds made by Gunshot are knowne by their figure, which is usually round; by their colour, as when the native colour of the part decays, and in stead thereof a livid, greenish, violet or other colour succeeds; by the feeling or sense of the stroke, when in the very instant of the receiving thereof, hee feels a heavy sense as if some great stone, or peice of Timber, or some such other weighty thing had fallen upon it; by the small quantity of blood which issues out thereat, for when the parts are contused, within some small while after the stroke they swell up, so that they will scarce admit a Tent, whence it is that the blood is stopped, which otherwise would flow forth of the orifice of the wound; by heate, which happens eyther by the violentnesse of the motion, or the vehement impulsion of the aire, or the attrition of the contused parts, as the flesh and nerves.

Whence these wounds are so much contused.

Also you may conjecture that the wounds have beene made by Gunshot, if the bones shall be broken, and the splinters thereof by pricking the neighbouring bodies cause defluxion and inflammation. But the cause that the Bullet makes so great a contusion is, for that it enters the body not with any points or corners, but with its round and sphericall body, which cannot penetrate but with mighty force; whence it commeth to passe that the wound lookes blacke, and the adjacent parts livid. Hence also proceede so many grievous symptomes, as paine, Defluxion, Inflammation, Apostumation, Convulsion, Phrensie, Palsie, Gangreen and mortification, whence lastly death ensues. Now the wounds doe often cast forth virulent and very much stincking filth, by reason of the great contusion, and the rending and tearing of the neighbouring particles. A great abundance of

of humors flow from the whole body, and fall downe upon the affected parts, which the native heate thereof being diminished forsakes, and presently an unnaturall heate seizes upon it. Hither also tend an universall or particular repletion of ill humours, chiefly if the wounds possesse the nervous parts as the joynts. Verily neither a Stagge with his horne, nor a flint out of a sling can give so great a blow, or make so large a wound, as a Leaden or Iron Bullet shot out of a Gun, as that which going with mighty violence, pierces the body like a Thunderbolt.

CHAP. III.

How these wounds must be ordered at the first dressing.



He wound must forthwith be enlarged, unlesse the condition of the part resist, that so there may be free passage forth both for the *Sanies*, or matter, as also for such things as are forced, or otherwise contained therein; such as are peices of their cloathes, bombast, linnen, paper, peices of Maile or Armour, Bullets, Haile-shot, splinters of bones, bruised flesh and the like, all which must be plucked forth with as much celerity and gentlenesse as may bee. For presently after the receiving of the wound the paine and inflammation are not so great, as they will be within a short time after. This is the principall thing in performance of this worke, that you place the patient just in such a posture as he was in at the receiving of the wound; for otherwise the various motion and turning of the Muscles will eyther hinder or straiten the passage forth of the contained bodies. You shall if it be possible, search for these bodies with your finger, that so you may the more certainly and exactly perceive them. Yet if the Bullet bee entred somewhat deepe in, then you shall search for it with a round and blunt probe, lest you put the patient to paine; yet oftentimes you shall scarce by this meanes finde the Bullet. As it happened to the Marshall of *Brissac* in the seige of *Parpignan*, who was wounded in his right shoulder with a Bullet, which the Chirurgions thought to have entred into the capacitie of his body. But I, wishing the patient to stand just in the same manner as hee did when hee received the wound, found at length the place where the Bullet lay, by gently pressing with my fingers, the parts neare the wound, and the rest which I suspected; as also by the swelling, hardnesse, paine and blacknesse of the part, which was in the lower part of the shoulder neare unto the eight or ninth spondill of the backe. Wherefore the bullet being taken forth by making incision in the place, the wound was quickly healed and the Gentleman recovered. You shall well observe this, and rather beleve the judgement of your fingers, than of your probe.

Strange bodies must first be pulled forth,

The manner how to draw them forth.

CHAP. IIII.

A description of fit Instruments to draw forth Bullets and other strange bodies.

Both the magnitude and figure of Instruments fit for drawing forth of Bullets and other strange bodies, are various according to the diversity of the incident occasions. For some are toothed, others smooth, others of another figure and bignes; of all which sorts the Chirurgion must have divers in a readinesse, that he may fit them to the bodies and wound, and not the wounds and bodies to his Instruments.

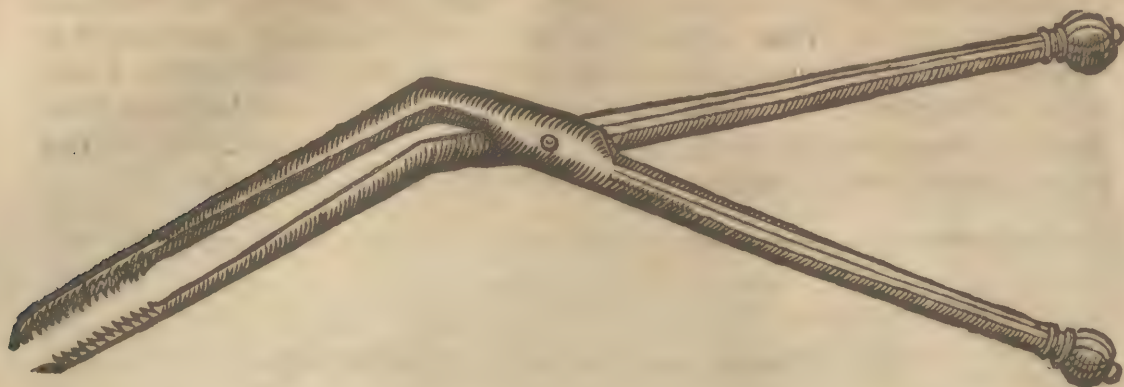
The Deliniation of such like Instruments.

A toothed Crowes-Bill.



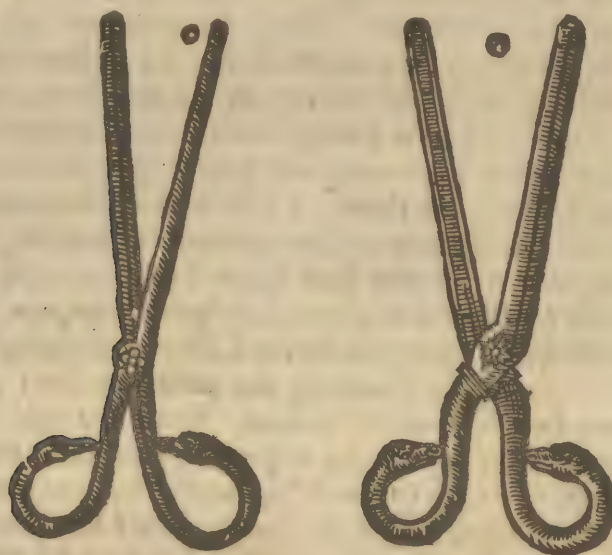
The

The crooked Cranes-bill, with teeth like a Saw.



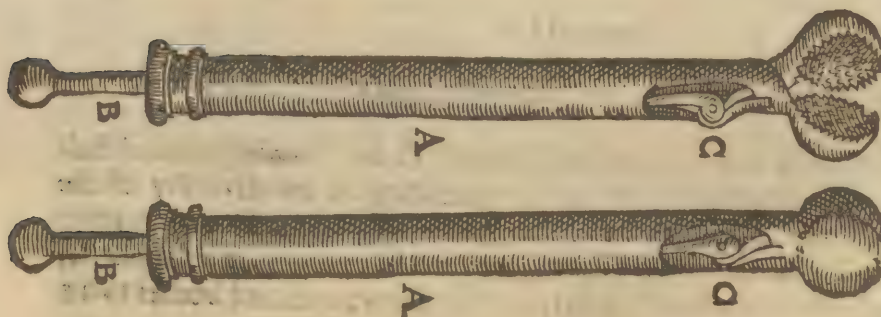
The straight Cranes-bill being also toothed, fit for drawing forth haile-shot, pieces of armour, splinters of bones, and such things as lye deepe within.

The Ducks-bill.



This Ducks bill hath a large round and toothed cavities in the end, for so it more easily taketh hold of the Bullet when it lies amongst much Flesh.

Another Instrument fit for drawing forth of Bullets, which may be termed, a Catch-bullet.



A. Shewes the Trunke.

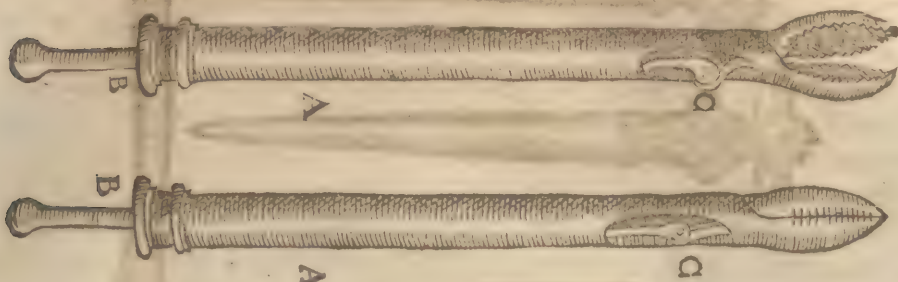
B. Shewes the rod, or string, which opens & shuts the joint.

C. The joint.

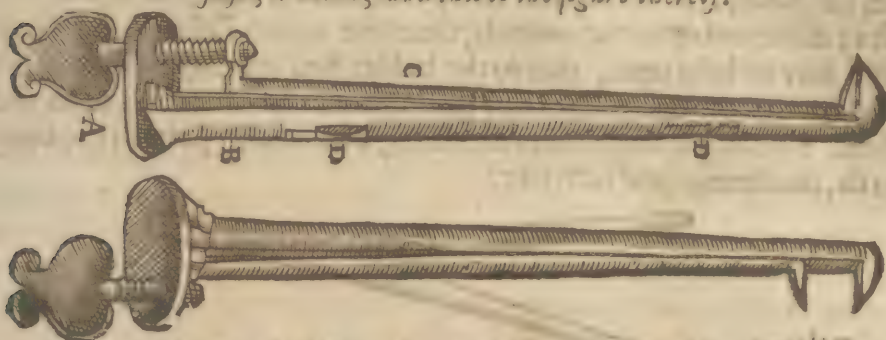


Another

Another Catch-bullet called a Lizards-nose, made for drawing out of bullets which are somewhat flattened, by striking upon a bone.



The Parrots-beake is made for drawing forth peices of maile thrust into the flesh, flesh, or bones; and this is the figure thereof.

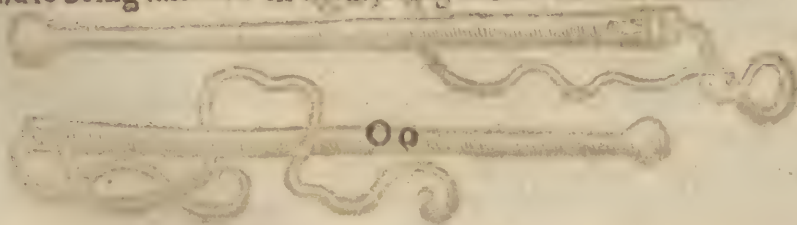


A. Shewes the screw pin. B. The hollowed part which receives, the round part noted with. C. which is opened and shut by the screw. D. D. falls, or staves, which governe the running branch.

The Swannes bill opens with a screw: you may with this dilate the wounds, and so put in a straight Cranes-bill, as pincers to plucke forth strange bodyes. The figure of both are heere exprest.

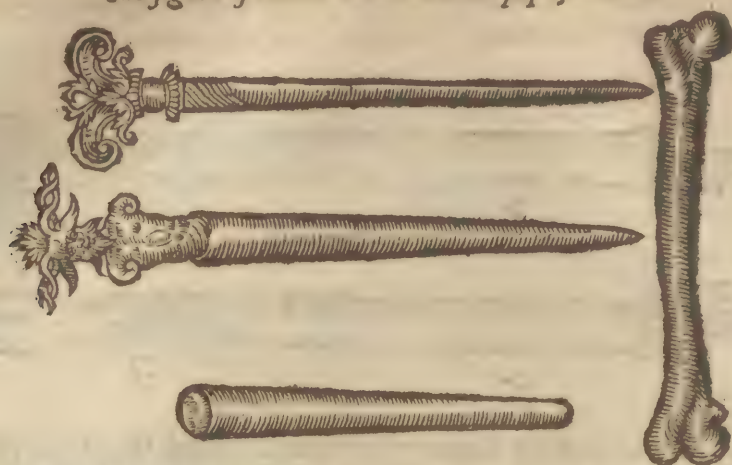


But if these strange bodyes, especially bullets and haile shot, be not too deepe in the wound, they may be taken forth with your Levatorie, or else by the helpe of these Gimbets. These Gimbets are screwed into their pipes, or canes, and enter with their screwed points into the Bullets, if that they be of Lead or Tin, and of no harder metall; and so being fastened in them, bring them out with them.



The

The figure of the Gimbles with his pipe, or cane.



Besides the Swanf-bill which wee lately mentioned, there are also other Instruments fit to dilate and open the wounds; therefore called Dilaters, by whose helpe the wound may be held open, that so the hidden bodyes may be seene; for when you presse together the two ends of this Instrument, the other two open and dilate themselves. You may also use them in dilating divers other parts of the body, as the Nose-thrills, fundament, and such like.

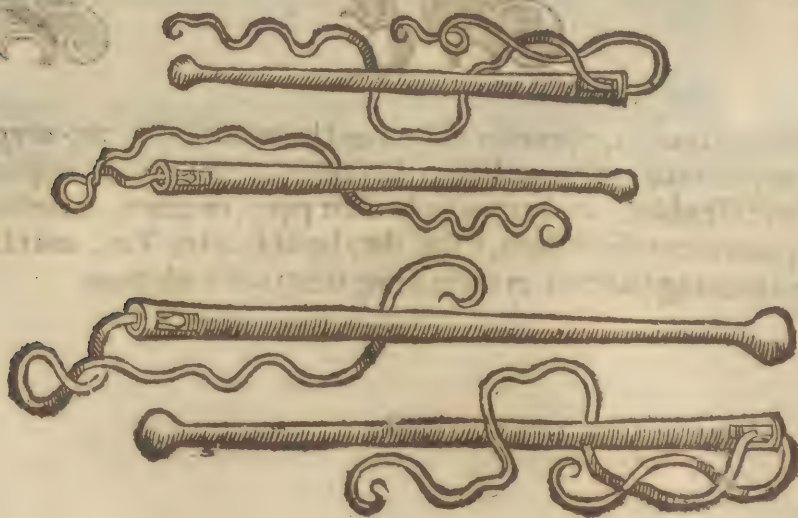


Dilaters.

The Instruments which follow are called Seton needles, or Probes; whose use is, to draw through a flamula, so to keepe the wound open, that you may the better take forth any strange body. Besides also we use the same needles, to search, or as it were to sound the deepenesse of wounds, and to finde out the Bullets. For they cannot put one to much paine because they have smooth and round ends. So also all Probes wherewith we search for Bullets, must have somewhat large, smooth and round ends. For seeing that the verges of the wound meete together presently after the hurt, if the Probes be too small or slender, they will sticke in the inequality of the flesh, neither will they be able to come to the Bullet. But if they bee sharpe and pointed, they will cause and renew the paine by pricking the flesh they melt withall, and so hinder your intention of finding the Bullet; Now you must bee furnished with these Instruments of a different length, according to the various thicknesse of the parts; for you cannot put any through the thigh but such as are of good length.

What probes
fit to search
these wounds.

Probes for to put flamulaes through a wound withall.



CHAP. IX.

what dressing must first be used, after the strange bodies are pluckt or drawn out of the wound.

When the strange bodies are drawne or pluckt out of the wound, by these meanes we have formerly recited, the chiefe of the cure must be to heale the contusion, and amend the distemper of the aire if it bee hot and moyst, that is, subject to putrefaction. This shall be don by medicins taken inwardly, applied outwardly and put into the wound. Things to be inwardly used in dyet and Pharmacie I leave to the judgement of learned Physitions; for the particular and to pickie medicines, (unlesse from the present constitution of the ayre, the condition of the wounded part, or from some other cause there be danger of a Gangrene) you must use suppuratives, as you usually doe in contusions; such as are oyle of Whelpes and that which we call a digestive; you must chiefly forbear suppuratives, when as the wounded part is of a nervous nature. For all nervous parts require dryer medicines than fleshy, as we have formerly delivered speaking of wounds of the joynts; wherefore in wounds of the joynts and nervous parts you shall use more venice Turpentine than oyle. *Laurentius Iobertus* the Kings Physition and Chancellour of the Vniversity of Mompelier, in a treatise which hee writ of wounds made with Gunshot, forbids the use of Escharotickes both actuall and potentiall, in these wounds, if simple; for that they induce paine, inflammation, a feaver, Gangrene and other deadly symptomes. Besides also an eschar will hinder suppuration, which is to bee desired in this kinde of woundes, that so the contused flesh may be severed from the sound, least it be drawne to putrefaction by contagion. Which easily happens when an Eschar is drawne, as a barre over it, for then the excrementitious humor remains longer in the part, and the putridinous vapours hindered from passing forth, are increased, and carryed from the lesser vessells to the bigger, and so over all the body. Wherefore, when you suspect putrefaction, letting alone suppuratives, use in the first place such things as resist putrefaction, as this following ointment. *R. pulver. alumin. rocha. viridis aris. Vitrioli romani. mellis rosat. an. ʒij. aceti boni quantum sufficit, bulliant omnia simul secundum artem, & fiat medicamentum ad formam mellis.* This by reason of the heate and subtilty of the substance, hath a faculty to induce and attenuate the humors, as also to call forth the native heate drawne in and dissipated by the violent and forcible entrance of the Bullet into the body; furthermore also it corrects the venemous contagion of the virulent humor. Now this medicine shall be used, dissolved in Venegar or *aqua vita*, and be put into the wound with tents, or pledgets. The tents which shall bee used at the first dressing must be somewhat long and thicke, that by dilating the wound, they may make way for application of other remedies; otherwise you may make injection with a syring, that so it may penetrate the more powerfully. But this described *Egyptiacum* shall be tempered according to the condition of the affected parts, for the nervous parts will bee offended with it as being too acide; but it may be qualified by admixture of oyle of Turpentine and Saint Iohn-wort. Also we may well be without this *Egyptiacum* when there is no such pestilent constitution of the ayre, as was seene in the late Civill warres. After the use of *Egyptiacum* you shall with emollient and lenitive medicines procure the falling away of the Eschar, and such a medicine is this following oyle, being somewhat more than warme.

A Caution in the use of suppuratives.

Why Escharotickes must be eschewed in these kinds, if they be simple.

How an Eschar may cause putrefaction.

The description of an *Egyptiacum*.

How and when to temper this *Egyptiacum*.

The oyle of Whelpes a digestive, anodyne, and fit medicine to procure the falling away of an Eschar.

R. Olei violati lib. iij. in quibus coquantur catelli duo nuper nati, usque ad dissolutionem ossium, addendo vermium terrestrium, ut decet preparatorum. lb. j. coquantur simul lento igne, deinde fiat expressio ad usum, addendo terebinth. venet. ʒij. aqua vita ʒj. This oyle hath a wonderful force to assuage paine, to bring the wound to suppuration, & cause the falling away of the Eschar. This ensuing oyle is made more easily. R. olei seminis lini, & lilior. an. ʒij. unguem. basilic. ʒj. liquefiant simul & fiat medicamentum; put of this a sufficient quality into the wound; for this being applyed indifferent hot, hath power to assuage pain, to soften and hument the orifice of the wound, and help forwards suppuration, which is the true manner of curing these kinde of wounds, according to

Lib. de ulcer.

the rule of *Hippocrates*, which wishes every contused wound to bee presently brought to suppuration, for so it will be lesse subject to a Phlegmon; and besides, all the rent and bruised flesh must putrifie, dissolve and turne to quitture, that new and good flesh may be generated in steed thereof.

The faculties of the powder of Mercury.

Laurentius Ioubertus much commends this following medicine, of whose efficacy, as yet, I have made no triall. *R. pulver. mercur. bis calcinati, ℥j, adipis porci recentis, vel butyri recentis, ℥viij. Camphora in aqua vite dissoluta, ℥ij. misce omnia simul, addendo tantillum olei liliorum, aut lini.* Experience taught him, and reason also shewes, that this kinde of remedy is very commendable; for the powder of Mercury, if mixed with a grosse and humecting matter, doth in a short space turne the bruised flesh into pus, without causing any great paine. For the Camphire, whether it be hot or cold, in temper, it much conduces to that purpose, by reason of the subtilty of the parts, whereof it consists. For by meanes of this quality the medicines enter with more facility into the affected bodyes, and performe their parts; besides also Camphire resists putrification. Some droppe into the wound *aqua vite*, wherein they have dissolved some calcined vitrioll. Which kind of remedy is not suppurative, but yet much resists putrefaction, so that we may use it with good successe, when the weather is hot, moyst, and foggie. But when the wound is made very neere at hand, it cannot but be burnt by the flame of the powder; in which remedies used for burnes, will be usefull, not omitting such as are fit for contusions. But for these parts which lye next the wound, you shall not, unlesse at the first dressing apply, refrigerating and astringent things, but rather emollient and suppurative. For those things which have a refrigerating faculty, weaken the part, and hinder suppuration. For astringents constrict the skin, which is the cause, that the putride vapours shut up and hindered from transpiration and passage forth, a gangrene and mortification easily seaze upon the part. But if the contusion be great and diffuse it selfe more largely over the flesh; the part must be much scarified; that so the contused and concreat blood, and therefore subject to putrefaction, may be evacuated. But for these parts, which somewhat further distant from the wound encompass the contused flesh, they require refrigerating and strengthening medicines, so to hinder the falling downe and setting of the humor in that part; such is this ensuing medicine. *R. Pul. boli. armen. sanguin. Dracon. Myrrha. an. ℥j succi solan. semper vivi, portulac. an. ℥iss. album iij. ovorum. exyrhodin. quantum sufficit; fiat linimentum, ut decet.* You may use this, and the like untill the suspected symptome, be past feare. Neither must you have lesse care, of binding up and rolling the part, than of your medicines; for it doth not a little conduce to the cure, to binde it so fittly up as it may be without paine. The wound at the beginning of the cure, must be dressed but once in 24. houres, that is, untill the wound come to suppuration; but when the quitture begins to flow from it, and consequently the paine and feaver are encreased, it shall be drest twise a day, that is every twelve houres. And when the quitture flowes more abundantly than usuall, so that the collection thereof is very troublesome to the Patient, it will be requisite to dresse it every 8 houres; that is thrise a day. Now when as this abundant effluxe is somewhat flaked, and begins to decrease, it will suffice to dresse it twise a day. But when the ulcer is filled with flesh, and consequently casts forth but little matter, it will serve to dresse it once a day, as you did at the first.

The force of calcined vitrioll.

How wounds made by Gunshot may be combut.

Scarification.

An Astringent repelling medicine.

The binding up.

How oft the wound must be drest in a day.

CHAP. VI.

How you shall order it at the second dressing.



The second and following dressings, unlesse you suspect putrification, and a Gangrene, you shall onely put into the wound some of the oyles formerly described, adding to them the yolkes of some egges and a little saffron; and use this medicine, untill the wound come to perfect suppuration. Here you must note this, that these kindes of wounds are longer before they come to suppuration, than other wounds made by any other sort of weapon; both for that the bullet, as also the ayre which it violently carries before it, by much bruising the flesh, on every side, dissipates the native heate, and exhausts the spirits of the part. Which things hinder

Why wounds made by Gunshot are so long before they come to suppuration.

hinder digestion, and often cause the matter to stinke, as also many other pernicious symptoms. Yet most usually pus or quittance appeares within three or foure dayes, sooner and later according to the various complexion, and temperament of the patients bodies, and the condition of the ambient ayre in heate and cold. Then by little and little you must come to deterfives, adding to the former medicine some Turpentine washed in Rose, Barly, or some other such like water, which may wash away the biring thereof. If the encompassing ayre be very cold, you may to good purpose adde some *aqua vita*; for by *Galens* prescript, we must use hot medicines in winter, and lesse hot in summer. Then in the next place use deterfives, as *R. aqua decoctionis hordei quantum sufficit, succi plantaginis, appj, agrimon. centauri minoris, an. ʒj, bulliant omnia simul; in fine decoctionis adde terebinthina veneta ʒiij. mellis rosat. ʒij. farin. hordei. ʒiij. croci ʒj.* Let them be all well mixed together and make a Mundificative of an indifferent consistence. Or *R. succi clymeni, plantag. absinth. appj, an. ʒij. tereb. venet. ʒ4. syrup. absinth. & mellis ros. an. ʒij. bulliant omnia secundum artem, postea colentur, in colatura adde pulver. aloes, mastiches, Treos Florent. far. bord. an. ʒj. fiat Mundificativum ad usum dictum.* Or else *R. terebinth. venet. lota in aq. ros. ʒv. olei ros. ʒj. mellis ros. ʒiij. myrrha, aloes, mastich. aristoloch. rotunde, an. ʒiij. far. bord. ʒiij. misce.* Make a Mundificative, which you may put into the wound with tents, but such as are neither too long, nor thicke, lest they hinder the evacuation of the quittance and vapours, whence the wounded part will bee troubled with erosion, paine, defluxion, inflammation, absesse, putrefaction; all which severally of themselves, as also by infecting the noble parts, are troublesome both to the part affected, as also to the whole body besides. Wherefore you shall put into the wound no tents, unlesse small ones, and of an indifferent consistence; lest (as I sayd) you hinder the passing forth of the matter, or by their hard pressing of the part, cause paine, and so draw on malignant symptoms. But seeing tents are used both to keepe open a wound so long, untill all the strange bodies be taken forth, as also to carry the medicines, wherewithall they are annointed: even to the bottome of the wound. Now if the wound be sinuous and deepe, that so the medicine cannot by that meanes arrive at the bottome and all the parts thereof, you must doe you business by injections made of the following decoction. *R. aq. bord. lib. 4. agrimon. centaur. minor. pimpinelle, absinth. plantag. an. M. ʒ. rad. aristoloch. rotund. ʒʒ. fiat decoctio ad lib. j. in colatura expressa dissolve aloes hepatica ʒiij. mellis ros. ʒij. bulliant modicum.* Inject some of this decoction, three or foure times into the wound, as often as you dresse the patient; and if this shall not be sufficient to cleanse the fith, and waste the spongius, putride and dead flesh, you shall dissolve therein as much *Egyptiacum* as you shall thinke fit for the present necessity; but commonly you shall dissolve an ounce of *Egyptiacum* in a pint of the decoction. Verily *Egyptiacum* doth powerfully consume the proud flesh which lyes in the capacity of the wound; besides also it only workes upon such kind of flesh. For this purpose, I have also made triall of the powder of Mercury, and burnt Alome equally mixed together, and found them very powerfull, even almost as sublimate, or Arsenicke, (but that these cause not such paine in their operation.) I certainly much wonder at the largeness of the Eschar which arises by the aspersio of these powders. Many Practitioners would have a great quantity of the injection to be left in the cavities of sinuous ulcers, or wounds; which thing I could never allow of. For this contained humor causeth an unnaturall tension in these parts, and taints them with superfluous moisture, whereby the regeneration of flesh is hindered; for that every ulcer as it is an ulcer, requires to be dried, in *Hippocrates* opinion. Many also offend in the too frequent use of Tents; for as they change the every houre, they touch the sides of the wound, cause paine, & renew other malignant symptoms; wherefore such ulcers as cast forth more abundance of matter, I could wish rather to be dressed with hollow tents, like those I formerly described to be put into wounds of the Chest. You shall also presse a linnen boulder to the bottome of the wound, that so the parts themselves may be mutually condensed by that pressure and the quittance thrust forth; neither will it be amisse to let this boulder have a large hole fitted to the orifice of the wound & end of the hollow tent and pipe, that so you may apply a sponge for to receive the quittance, for so the matter will be more speedily

Why Turpentine must be washed,

Gal. lib. 3. Meth.

A detergens medicine.

Why tents must be neither too long, nor thicke.

When you must use injections.

An Injection;

The quantity of *Egyptiacum* to be used in an injection.

Why none of the injection must be left in the wound.

Hollow tents or pipes

The manner of binding up the wound.

evacuated and spent, especially if it be bound up with an expulsive ligature, beginning at the bottome of the ulcer, and so wrapping it up to the toppe. All the boulders and rowlers, which shall be applyed to these kindes of wounds, shall be dipped in Oxycrate, or red wine, so to strengthen the part, and hinder defluxion. But you must have a speciall care, that you doe not binde the wound too hard, for hence will arise paine, hindring the passage forth of the putredinous vapours and excrements, which the contused flesh casts forth; and also feare of an *Atrophie*, or want of nourishment, the alimentary juyces being hindred from comming to the part.

CHAP. VII.

By what meanes strange bodyes, left in at the first dressing, may be drawne forth.

Two causes
that make
strange bodies
hard to be taken
forth.

IF divers times happens, that certaine splinters of bones, broken and shattered asunder by the violence of the stroake, cannot be pulled forth at the first dressing, for that they either doe not yeeld or fall away, or else cannot be found by the formerly described instruments. For which purpose this is an approved medicine to draw forth that which is left behind.

R. *radic. Ireos Florent. panac. & cappar. an. ʒiij. aristoloch. rotund. manna, thuris. an. ʒj. in pollinem redacta incorporentur cum melle rosar. & terebinth. venet. an. ʒij.* Or R. *resin. pini sicca ʒiij. pumicis combusti & extincti in vino albo, radic. Ireos, aristolochia, an. ʒʒ. thuris ʒj. squama aris, ʒij. in pollinem redigantur, incorporentur cum melle rosato, fiat medicamentum.*

CHAP. VIII.

Of Indications to be observed in this kinde of wounds.

THE ulcer being clensed and purged, and all strange bodyes taken forth; nature endeavours to regenerate flesh, and cicatrize it, must be helped forwards with convenient remedies, both taken inwardly, and applyed outwardly. To which things we may be easily and safely carryed by indications drawne, first from the essence of the disease, then from the cause; if as yet present it nourish the disease. For that which *Galen* sayes, *Lib. 3. Meth.* that no indication may be taken from the primitive cause and time; must be understood of the time past, and the cause which is absent. And then from the principall times of the disease, the beginning, encrease, state, and declination; for each of these foure require their remedies. Others are taken from the temperament of the patient, so that no Chirurgeon neede doubt, that some medicines are fit for cholericke, other some for phlegmaticke bodyes. Hither referre the indication taken from the age of the patient; also it is drawn from his dyet, for no man must prescribe any slender diet to one who is alwayes feeding, as to him who is accustomed to eate but once, or twice a day. Hence it is that a dyet consisting onely of *Panada's* is more fit for Italians, than for French men; for we must give somewhat to custome, which is as it were another nature. Vocations and dayly exercises, are referred to dyet, for other things besit husbandmen and labourers, whose flesh is dense and skin hardened by much labour, than idle and delicate persons. But of all other, have diligent regard of that indication which is drawne from the strength of the patient; for we must presently, (all else being neglected) succour the fainting, or decaying strength; wherefore if it be needfull to cut off a member that is putrified, the operation must be deferred if the strength of the patient be so dejected, that hee cannot have it performed without manifest danger of his life. Also indication may be drawne from the encompassing ayre, under which also is comprehended that, which is taken from the season of the yeere, region, the state of the ayre and soyle, and the particular condition of the present and lately by-past time. Hence it is we read in *Guido*, that wounds of the head are cured with

The Indication
on which is
drawne from
the strength
of the patient
is the chiefest
of all other.

with farre more difficulty at *Paris*, than at *Avignon*; where notwithstanding on the contrary, the wounds of the legges are cured with more trouble, than at *Paris*; The cause is, the ayre is cold and moyst at *Paris*; which constitution seeing it is hurtfull to the braine and head, it cannot, but must be offensive to the wounds of these parts. But the heate of the ambient ayre at *Avignon*, attenuates and dissolves the humors, and makes them flow from above downewards. But if any object that experience contradicts this opinion of *Guido*, & say, that wounds of the head are more frequently deadly in hot countries; let him understand that this must not be attributed to the manifest & naturall heate of the ayre, but to a certaine maligne & venenate humor, or vapour disperfed through the ayre, and rayfed out of the Seas; as you may easily observe in those places of France & Italy which border upon the Mediterranean Sea. An indication may also be drawne from the peculiar temper of the wounded parts, for the musculous parts must be dressed after one, and the bony parts after another manner. The different sense of the parts, indicates and requires the like variety of remedies; for you shall not apply so acride medicines to the Nerves and Tendons, as to the ligaments which are destitute of sense. The like reason also, for the dignity and function of the parts needfull for the preservation of life; for oft times wounds of the braine, or of some other of the naturall and vitall parts, for this very reason that they are desired in these parts, divert the whole manner of the cure, which is usually and generally performed in wounds. Neither that without good cause, for oft times from the condition of the parts, we may certainly pronounce the whole successe of the disease; for wounds which penetrate into the ventricles of the braine, into the heart, the large vessels, the chest, the nervous part of the midriffe, the Liver, ventricle, small guts, bladder, if somewhat large are deadly; as also these which light upon a joynt in a body replete with ill humors, as we have formerly noted. Neither must you neglect that indication which is drawne from the situation of the part, and the commerce it hath with the adjacent parts, or from the figure thereof; seeing that *Galen* himselfe would not have it neglected. But wee must consider in taking these forementioned Indications, whether there bee a composition, or complication of the diseases; for as there is one and that a simple indication, of one & that a simple disease, so must the indication be various of a compound and complicate disease. But there is observed to be a triple composition, or complication of affects besides nature; for either a disease is compounded with a disease, as a wound, or a pblegmon with a fracture of a bone; or a disease with a cause, as an ulcer with a defluxion; or a disease with a symptome, as a wound with paine, or bleeding. It sometimes comes to passe, that these three, the disease, cause, and symptome, concur in one case or affect. In artificially handling of which, we must follow *Galens* counsell, who wises in complicated and compounded affects, that we resist the more urgent; then let us withstand the cause of the disease, and lastly that affect, without which the rest cannot be cured. Which counsell must well be observed; for in this composure of affects, which distracts the Empericke; But on the contrary the rationall Physition hath a way prescribed in a few and these excellent words, which if hee follow in his order of cure, hee can scarce misse to heale the patient. Symptomes truly as they are symptomes, yeeld no indication of curing, neither change the order of the cure; for when the disease is healed, the symptome vanishes, as that which followes the disease, as a shadow followes the body. But symptomes doe often times so urge and presse, that perverting the whole order of the cure, we are forced to resist them in the first place, as those which would otherwise encrease the disease. Now all the formerly mentioned indications may be drawne to two heads; the first is, to restore the part to its native temper; the other is that the blood offend not either in quantity or quality; for when these two are present, there is nothing which may hinder the repletion, nor union of wounds or Vlcers.

Why wounds of the head at *Paris*, and of the legges at *Avignon* are hard to be cured.

An indication to be drawne from the quicke and dullente of the wounded parts.

*Gal. lib. 7.
Meth. et 2, ad
Gluco.*

*Gal. lib. 7.
Meth.*

How and when we must take indication of curing from a symptome.

CHAP. IX.

what remains for the Chirurgion to doe in this kinde of wounds.



Why such as
are wounded
must keepe a
slender Diet,

Why we must
open a veine in
such as are
wounded by
Gunshot.

Gal. Lib. 4.
Meth. cap. 6.

Gal. Lib. 1 de
comp. Med. se-
cund. gen. c. 6.

An Anodyne
and ripening
Cataplasme

He Chirurgion must first of all be skilfull and labour to assuage paine, hinder defluxions, prescribe a dyet in these sixe things we call Not naturall, forbidding the use of hot and acrid things, as also of wine; for such attenuate the humors and make them more apt for defluxion. Therefore at the first let his dyet be slender, that so the course of the humors may bee diverted from the affected part; for the stomacke being empty and not well filled, drawes from the parts about it, whereby it consequently followes, that the utmost and remotest parts are at the length evacuated; which is the cause, that such as are wounded, must keepe so spare a dyet for the next dayes following. Venery is very pernicious, for that it inflames the spirits and humors farre beyond other motions; whereby it happens that the humors waxing hot, are too plentifully carryed to the wounded and overheated part. The bleeding must not bee stanchd presently upon the receiving of the wound, for by the more plentiful efflux thereof the part is freed from danger of inflammation and fulnesse. Wherefore if the wound bleede not sufficiently at the first, you shall the next day open a veine, and take blood according to the strength and plenitude of the patient; for there usually flowes no great store of blood from wounds of this nature; for that by the greatnesse of the contusion and vehemencie of the mooved ayre, the spirits are forced in, as also I have observed in those who have one of their limbes taken away with a Cannon bullet. For in the time when the wound is received, there flowes no great quantity of blood, although there be large veines and arteries torne in sunder thereby. But on the 4, 5, 6. or some more dayes after, the blood flowes in greater abundance, and with more violence, the native heate and spirits returning into the part. The belly must be so qualified, that he may have at the least one stoole a day, either by nature, or Art; and if by Art, then rather with a glister than purging medicines taken by the mouth, for that the agitation of humors, chiefly in the first dayes of the disease, is to be suspected, least we increase the defluxion falling downe upon the wounded part. Yet Galen writes that both the evacuations are heere needefull, that is, blood-letting and purging, though the Patient bee neither phethoricke, nor replete with ill humors. But the care hereof must be committed to the judgement of the learned Physition. Paine if ioyned with inflammation shall be mitigated, by anointing the parts neere unto the wound with *Vnguent. nutritum*, composed with the juyce of Plantaine, Houslecke, Nightshade and the like. *Vnguentum Diacalcis theos* described by Galen dissolved with vinegar, oyle of Poppyes and Roses is of no lesse efficacy; nor *unguent. de bolo*, nor divers other things of the same faculty, though properly no anodynes, as those which are not hot and moyst in the first degree, but rather cold, but yet not so as to have any narcoticke faculty. Now these forementioned things assuage paine for that they correct the hot distemper, and stay the acride and cholericke defluxions, whose violence is more than cold. After the use of repercussives, it will be good to apply this following cataplasme. *R Mica panis infusa in lacte vaccino lb. j. β. bulliant parum addendo olei violacei, & rosar. an. ℥iij. vitellos ovorum nn. iiij. pulver. rosar. rub. flor. chamem. & meliloti, an. ℥ij. farin. fabar. & bordei, an. ℥j. misce, fiat cataplasma secundum artem.* Also in this case you may easily make a medicine, of bread crummes boyled in Oxycrate and oyle of Roses. The cure of Tumors, if any associate the wound, may be found in their proper place. Natures motion, whether to suppuration, or any such thing, must still be observed, and helped by the Physition and Chirurgion, as the ministers or servants thereof.

CHAP. X.

Of Bullets which remaine in the body, for a long time after the wound is healed up.



LEaden Bullets lye in some parts of the body some whiles leaven, eight or more yeares, so that they neither hinder the agglutination of the wound, neither doth any other symptome happen thereupon, as I have diverse times observed; untill at length by the strength of nature forcing them, and their proper weightines bearing them downewards, they shew themselves in some lower part, by their swelling or bunching forth, and so must be taken forth by the hand of the Chirurgion. For they say Lead hath a certaine sympathy and familiarity with mans body, chiefly the fleshy parts thereof. Wherefore it neither putrifies its selfe, nor causeth the flesh to putrifie; besides it hath an excellent faculty in cicatrizing old ulcers. But bullets of stone, Iron and of any other mettrall, are of another nature, for they cannot remaine any long time in the body without hurt; for Iron will grow rusty, and so corrode the neighbouring bodyes, and bring other malignant symptomes. Yet a Leaden bullet cannot remaine any long time in nervous, or noble parts without danger.

Why Leaden Bullets lye in the body so many yeeres without doing any harme.

CHAP. XI.

How to correct the constitution of the ayre, so that the noble parts may be strengthened, and the whole body besides.

BUt because as we have formerly told you, there are some times wherein even small wounds made by Gunshot prove deadly, not by their owne fault, but the fault of the ayre; therefore also the Chirurgion must have this care, that he correct the ayre with all diligence, and reduce it to a certaine quality and moderation of substance, and strengthen the noble parts and whole body besides, which may be performed, by the following medicines, which are to be taken inwardly and applied outwardly. In the morning three houres before meate let the Patient take some certaine quantity as the Physicion shall thinke fit of the electuary *Diarrhodon Abbat*, or *Aromaticum rosatum*, *irrasantalon*, *biamoschum*, *latificans Galeni*, or some such other like. And you shall apply some such Epitheme as is heere described to the heart and Liver. *R. aque rosar. ℥iiij, aqua buglossa, aceti boni, an. ℥ij. coriandri preparati ℥ss. caryophyll. cortic. citri, an. ℥j. sant. rub. ℥ss. ceralli utriusque ℥ss. camphora ℥j. croci ℥ss. pulver. diarrhod. Abbat. ℥ij. theriaca & Adithridatij an. ℥ss. pul. flo. chamem & melis. an. ℥iiij. misce, fiat epithema.* Let it be applyed warme by dipping a scarlet cloath therein. You shall frequently put odoriferous and refrigerating things to the patients nose, to strengthen the animall faculty, as, *R. aqua rosar. & aceti boni. an. ℥iiij. caryophyllorum, nucus moschat, cinamomi conquassatorum, & Theriaca Galeni, an. ℥j.* Let a linnen ragge dipped herein, be now and then put to the patients nose; for the same purpose he shall carry a Pomander about him, and often smell thereto. *As R. ros. rub. violar. an. ℥iiij. baccarum myrti, juniperi, santal. rub. an. ℥iiij. styracis calamit. ℥ij. aq. rosarum, quantum satis est: lique fiat simul cum cera alba quod sufficit, fiat ceratum ad comprehendendos supradictos pulvers cum pistillo calido, & ducatur in pomum.* Or *R. rad. Ireos Florent. majoran. calam. aromat. ladanij, benzoini, rad. cyperi, caryophyll. an. ℥j. Moschi. gra. 4. fiat pulvis cum gummi tragacanth. quod sufficit.* Or else *R. ladanij puri ℥i. Benzoini ℥ss. styracis calamit. ℥j. Ireos Flor. ℥ss. caryophyll. ℥iiij. majoran. ros. rub. calam. aromat. an. ℥ss, in pollinem redigantur omnia, & bulliant cum aqua ros. quantum sufficit; colentur, colata liquefiant cum justa cera alba quantitate, styracis liquide, ℥j, fiat ad modum cerati, & cum pistillo fiat pomum, addita moschi ℥j.* Also you may corroborate the animall faculty by application of frontalls, as also procure sleepe, and ease the paine of the head;

Cordials to strengthen the noble parts.

A cordiall Epithem.

Pomanders.

Frontalls to cause rest, and strengthen the animall faculty.

as,

A sweete was-
ter.Perfume to
burne.

as, R. *aq. ros.* ℥ij. *olei ros.* & *papav. an.* ℥i℥. *aceti boni*, ℥j. *trochis. de camphora*, ℥℥. *fiat frons- tale*. Linnen ragges dipped herein may be applyed to the temples of the forehead, and often renewed; otherwise by their heate, drynesse, and hardnesse, they will cause watching in steed of sleepe. Neither must you in the meane time binde the head too hard, lest by intercepting and hindring the pulsation of the temporall Artery, you encrease the paine of the head. You shall make a fire, in the patients chamber of orderiferous woods, as Juniper, Bay-tree, the prunings or cuttings of Vines, Rosemary, and Orris rootes. For the same purpose, you may sprinkle the floore with sweete water, if the patient be able to undergoe such cost. As, R. *majorana, mentha, radic. cyperi, calami aromat. salvia, lavendula, fanicul. thymi, stachad. flor. chamam. melilot. saturcia, baccarum lanri, & juniperi, an.* M. iij. *pulv. caryophyll. nucis Moschat. an.* ℥j. *aqua rosar. & vite, an. lib. ij. vini albi boni & odorifici. lb. x. bulliant omnia in balneo Maria ad usum dictum*. You may also make perfumes to burne in his chamber, as thus, R. *carbonis salcis* ℥viiij. *ladani puri* ℥ij. *thuris masculi, ligni & baccarum Juniperi, an.* ℥j. *xyloaloes, benjoini, styracis calami, an.* ℥℥. *Nucis moschatae, Jantab. citrin. an.* ℥iij. *caryophyll. styracis liquida, an.* ℥ij. *zedoaria, calami aromat. an.* ℥j. *gummi tragacanth. aqua rosar. soluti, quod sit satis*; Make hereof perfumes in what fashion you please. For the rottennesse and corruption of bones we will treat thereof hereafter in its due place.

CHAP. XII.

Certaine memorable Histories.

The malignant
symptomes
which usually
happens upon
wounds made
by Gunshot.Matter may
flow from the
wounded
limbes into the
belly.

Ere I thinke good for the benefit of young practitioners, to illustrate by examples the formerly prescribed Methode of curing wounds made by Gunshot. The famous and most valiant Count of Mansfelt, Governour of the Dutchy of *Luxembourge*, Knight of the order of Burgundy, comming to the ayde of the French King, was at the battell of Moncontour, where in the conflict, he received so great a wound at the joynt of the left arme with a Pistoll bullet, that the bones were shivered and broken in to many peeces, as if they had bin layd upon an Anvill and struck with an hammer: hence proceeded many malignant symptomes, as cruel & tormenting paine, inflammation, a seaver, an cedematous and flatulent tumor of the whole arme even to the fingers end, and a certaine inclination to a Gangrene: which to resist, *Nicolas Lambert*, & *Richard Hubert* the Kings Chirurgions, had made many and deepe scarifications. But when I came to visite and dresse him, by the Kings appointment, and had observed the great stinch, and putrefaction, I wished that they would use lotions of *Aegyptiacum* made somewhat stronger than ordinary, & dissolved in venegar & *aqua vite*, and do other things more largely spoken of in the chapter of a Gangrene. For the patient had also a *Diarrhea* or fluxe, whereby he evacuated the purulent, and stinking filth which flowed from his wound. Which how it might come to passe wee will show at large when we come to treat of the suppression of the Vrine. For this seemed very absurd to many, because that if this purulent humor flowed out of the arme into the belly, it must needs flow backe into the veines, bee mixed with the blood, and by its pernicious and contagious passage through the heart and liver, cause exceeding ill symptomes, and lastly death. Indeed he often swounded by the ascent of the filthy vapours raised from the ulcers to the noble parts; which to resist, I wished him to take a spoonefull of *aqua vite* with some Treacle dissolved therein. I endeavoured to repress the cedematous and flatulent Tumor possessing all the arme with stoups dipped in oxycrate, to which was put a little salt and *aqua vite*; these stoups I stayed & held to the part with double clothes, sowed as strait as I could. Such a compression held the broken bones in their places, pressed their *Sanies* from the ulcers, and forced backe the humors flowing to the part into the center of the body. If at any time I omitted this compression, the tumor was so encreased, that I was in a great deal of feare, lest the native heate of the part should bee suffocated. Neither could I otherwise binde up the arme by reason of the excessive paine which molested the patient upon the least stirring of the Arme. There were also many Abscesses about

about his elbow and over all his arme besides. For the letting forth of whole matter I was forced, to make new incisions; which he endured very stoutly. At length I cured him with using a vulnerary potion, and by cleansing the ulcers, and correcting the putrifaction with *Egyptiacum* dissolved in wine or honey of roses, and so poured into the ulcers, and repressing the growth of proud flesh, with the powder of burnt Alome, drying it after the deterfion with liniments. Now this I can truly affirme and professe, that during the time of the cure, I tooke out above threescore splinters of bones, and those necessarily, amongst which there was one of the length of ones finger; yet by Gods assistance at length he became sound in all things, but that hee could not put forth, or draw in his arme.

A breefe recitall of the manner of the cure,

Not long after by the Kings command I went to see *Charles Philip* of Croy, Lord of Aurret, the Duke of Aschos brother, nor farre from Mounts a City of Henalt. He kept his bed seaven monthes by reason of a wound made by a Bullet the space of three fingers above his knee. When I came to him, hee was afflicted with these symptomes, intollerable paine, a continuall feaver, cold sweats, watchings, excoriation of the hippes by reason of his long lying upon them, his appetite dejected with much thirst. He oft sunke downe as if he had the falling sicknesse, had a desire to vomit, and a continuall trembling or shaking so that he could not put one hand to his mouth without the assistance of the other: he swounded frequently by reason of the vapours ascending to the noble parts. For the thigh bone was broken long wayes and sidewayes with many splinters of bones, whereof some were plucked out and others remained sticking fast in. He besides also had an ulcer in his groine which reached to the midst of his thigh, and many other sinuous ulcers about his knee. All the muscles of his thigh and legge were swolne with a flegmaticke, cold and flatulent humor, so that almost all the native heate of those parts seemed extinct. All which things being considered, I had scarce any hope to recover him, so that I repented my comming thither. Yet at length putting some confidence in his strength, and prime of youth, I began to have better hopes. Therefore with his good liking, first of all I make two incisions, so to let forth the matter, which lying about the bone did humect the substance of the muscles. This had happy successe, and drew out a great quantity of matter; then I with a syring injected much *Egyptiacum* dissolved in wine, and a little *aqua vita* into these incisions, so to restraine and amend the putrifaction, repress the spongie, loose and soft flesh, resolve the cedematous and flatulent tumor, assuage the paine, and stirre up and strengthen the native heate almost opprest by the abundance of excrementitious humors, so that it could scarcely assimilate any nourishment and adjoyne it to the parts. Then I fomented the affected part with Sage, Rose-mary, Time, Lavander, Chamomile and Melilot flowres and red-rose leaves boyled in white wine, and lye made of Oake-ashes, adding thereto as much salt and vineger as I judged requisite. This fomentation did attenuate and draw forth the morbidicke humour. Now we used them long and often, so to waste the humour more by drying up and breathing thorow the passages of the skinne, more thereof than fell into the part. For this same purpose, we ordained that he should use frictions with hot linnen clothes, and that these should be made from above downwards, from below upwards, and so on every side, and somewhat long withall: For a short friction drawes more humour into the part than it can resolve: I wished that each other day they should lay bricks heated hot in the fire about his leg, thigh, & soale of his foot; but they were to be somewhat quenched, & sprinkeld with wine and vineger, with a small quantity of *aqua vita*. Much watrish moisture by this moist heat, did sweat out of these parts, the tumour was lessened, and the native heat by little and little restored. Then shoupes dipped in lye made of Oake-ashes, wherein Sage, Rosmarie, Lavender, salt, and cloves, were boyled, some *aqua vita* added, were applyed thereto; but the rowlers were so gently, and artificially wrapped about, that he did easily endure them without any paine, and that with such happy successe, that if they were omitted but for one day, the tumor became very great. But thicke linnen bouldsters were layd upon the lower cavities of the ulcers, that so the sanies or filth might be more easily pressed forth. But I had alwayes a speciall care that the orifices of the ulcers should be kept open with hollow Tents or pipes put therein:

Horride symptomes occasioned by a wound made by Gunshot.

Incisions wherefore made,

Wherefore I used fomentations,

Mixed or round frictions, as they terme them,

A modicated Lye.

and

A discussing
Cataplasme.

and sometimes this following cataplasme was applyed to resolve the tumor. *R. Far. bord. fabar. & orobi, an. ʒvj. mellis com. & tereb. an. ʒij. flo. chamam. melil. & ros. rub. an. ʒß. pulv. rad. Ireos, Flor. cyper. Mast. an. ʒij. oxymel. simp. quantum sufficit; fiat cataplasma ad formam pultis satis liquida.* And *Emplastrum de Vigo* without mercury was applyed thereto, whereby the paine was much asswaged, and the tumor lessened: yet were they not applyed before the parts were throughly heated by the fomentation, frictions, and evaporations; for otherwayes this Emplaster could never have beene activated, by reason of the excessive coldnesse of the affected parts. Neither did we omit catagmaticke powders, fit for the taking, and drawing forth of broken bones. He used a vulnerary potion for 15, dayes. Also besides the particular frictions of the affected parts, I appointed other generall frictions of the whole body, which was become very leane; for by these, blood together with the spirit was drawne to the parts, and the acride, and fuliginous vapours were breathed forth.

To conclude, his feaver and paines being asswaged, his appetite restored, by feeding plentifully upon good meates according to his strength, he in a short time became more lusty; and lastly by the singular mercy of God, recovered his health perfectly, but that he could not very well bend his knee. I thought good to recite these things, not to glory or bragge of the happy successe of those patients, which have recovered by my meanes, and the favour of God; but that thus I may more fully and perfectly by familiar examples instruct young practitioners in the operations of Chirurgery.

CHAP. XIII.

An Apologic concerning Wounds made by Gunshot.

The occasion
of writing
this Apologic.



The chiefe
heads of our
adversaries
Treatise.

All wounds
made by Gun-
shot are con-
tused.

Here lately came to my hands a booke written by a certaine Physicion; whereby he endeavours to disprove and overthrow, that which I have hitherto writ, of the cure of wounds made by Gunshot. Assuredly if there were no other harme, but the losse of my credit ensuing thereon, I would willingly hold my peace, and stoppe his mouth by modest silence. But seeing the safety of so many men, lyes upon the judgement of this point, I have thought good to withstand this error, least it, to the great destruction of mankind, spread and diffule it selfe any further. The use (saith he) of suppurative medicines, have killed many who have beene but lightly wounded with Gunshot, but acride medicines, as *Egyptiacum* have killed more. Neither is the counsell of *Hippocrates* to be observed in curing this sort of wounds, who bids that every contused wound be brought to suppuration. For seeing this is a new kinde of wound, it requires new, and not anciently used medicines. Now the temper of the ayre changed from the naturall constitution ought not to indicate change of medicines; but much lesse must thunder and lightening bee compared to the shooting of Great Ordinance. These are the chiefe heads of this his booke, which because they dissent from the truth, & these things I have formerly delivered, I have thought good heere to confute. First, seeing Leaden bullets which are usually shot out of Guns are round, obtuse and weighty, they cannot wound the body without contusion and attrition; Now no contusion can be cured without suppuration, not onely according to the opinion of *Hippocrates*, but also of *Galen* and all others who have written of Physicke. Neither must we invent new remedies, for these new kindes of wounds; for the lawes of the sacred and divine Art of Physicke are nor obnoxious to change, nor subject to the humor of men or times, as the decrees of Kings and Emperours are. For these are stablished with immutable necessitie, which constancie neither consuming time, nor age, nor tyranny can pervert. Wherefore neither these who with great prayse are Physicions to Kings and Princes, I meane *Ioubert* and *Botallus*, think it lawfull for them to depart from the rule of *Hippocrates*. And this they not onely doe and follow in curing and doing the workes of Art, but much and highly commend, confirme and propound to be diligently observed by all, in their bookes which they

they have published concerning the cure of these kinds of wounds. And yet these Physicians are such, as daily conversant in Armies and Kings houses have healed and daily cure as many wounded by Gunshot as this Physician our Antagonist hath seene in all his life. Neither onely doe these whom I have named thus cure these wounds, but almost all that dresse such kind of wounds doe the like, so that if there bee nothing which may hinder, or indicate to the contrarie they presently apply suppuratives. And I wonder that hee hath not observed how his neighbour *Doublet* the Empericke cures desperate wounds of this nature, with no other than a suppurative medicine, composed of Lard, the yolke of an Egge, Turpentine and a little Saffron.

A suppurative
medicine of
tryed efficacy.

In the year 1538. There was at *Turin* whilest I was Chirurgion there to the Marshall of *Montjan* the Kings Lieutenent Generall in *Piemont*, a certaine Chirurgion wondrous famous for curing these wounds, and yet hee used nothing else but the oyle of Whelpes, (the description whereof I at length obtained of him with much intreaty and expence) and hee used it not scalding hot, as some have imagined, but powred it scarce warme into their wounds, and so did mitigate their paine, and happily bring them to suppuration. Which afterwards almost all Chirurgions, after they had got the description heereof, when I first published this Worke, have used and daily doe use with happy successe.

But in condemning and condemning *Aegyptiacum*, I thinke hee hath no partaker, seeing there as yet hath beene found no medicine more speedy and powerfull to hinder putrefaction, if beginning; or correct it if present. Now these wounds often degenerate into virulent, eating, spreading, and maligne ulcers, which cast forth a stinking and carion-like filth, whence the part Gangrenates, unlesse you withstand them with *Aegyptiacum* and other acrid medicines, being greatly approved by the formerly named Physicians and all Chirurgions. But (saith hee) this unguent is poysonous, and therefore hath beene the death of many who have beene wounded by Gunshot. Verily if any diligently enquire into the composition of this ointment, and consider the nature of all and every the ingredients thereof, hee shall understand that this kind of Vnguent is so farre from poyson, that on the contrary it directly opposes and resists all poyson and putrefaction which may happen to a fleshy part, through occasion of any wound.

The force of
Aegyptiacum
a violent putrefaction.

It is most false and dissonant from the doctrine of *Hippocrates* to affirme, that the seasons of the year swerving from the Law of nature, and the aire, not truly the simple and elementary, but that which is defiled and polluted by the various mixture of putrid and pestilent vapours, cyther raised from the earth, or sent from above, make not wounds more maligne and hard to cure at sometimes than they are at other some.

The force of
the ayre in
breeding and
augmenting
diseases.

For the ayre cyther very hot, or cold, drawne into the body by inspiration or transpiration, generates a condition in us like its qualities. Therefore why may it not, when defiled with the putredinous vapours of bodies lying unburied after great battailes, and shipwracks of great Armadoes, infect with the like qualitie our bodies and wounds?

In the year 1562. when the civill warres concerning Religion first begun in France, at *Pene* a Castle lying upon the River *Lot*, many slaine bodies were cast into a Well, some hundred Cubits deepe, so stinking and pestilent a vapour arose from hence some two moneths after, that many thousand of people dyed all over the Province of *Aginois*, as if the Plague had beene amongst them, the pernicious contagion being spread twenty miles in compasse; which none ought to thinke strange, especially seeing the putride exhalations by the force of the windes may be driven and carried into divers and most remote regions, dispersed like the seeds of the Pestilence; whence proceeds a deadly corruption of the spirits, humors and wounds, not to be attributed to the proper malignitie, or perverse cure of wounds, but to be the fault of the aire.

A History.

Therefore *Francis Daleschampe* in his French Chirurgery, in reckoning up these things which hinder the healing of Vicers, hath not omitted

*Hip. Aph. I.
sect. 3.*

that common cause which proceeds from the ayre defiled or tainted with the seedes of the pestilence. For he had learnt from his Master *Hippocrates* that the mutations of times chiefly bring diseases, and he had read in *Guido*, that this was the chiefe occasion, that wounds of the head at *Paris*, and of the legges at *Avignon*, were more difficultly healed. Lastly even Barbers and such as have least skill in Chirurgery know, that wounds easily turne into a Gangrene in hot and moyst constitutions of the ayre.

In our second
discourse.

The power of
the starres up-
on the Ayre
and our bod-
ies.

*Aph. 20.
sect. 3.*

Wherefore when the winde is southerly, the Butchers will kill no more flesh than to serve them for one day. I have formerly declared the malignity of the wounds occasioned by the ayre in the seige of *Rouen*, which spared none, no not the Princes of the blood, who had all things which were requisite for their health. Which caused me, made at length more skilfull by experience, to use *Unguentum Aegyptiacum* and medicines of the like faculty in steed of suppuratives, to wounds during all that season, that so I might withstand the putrefaction and Gangrene which so commonly assailed them. But if the various motion of the starres, can by their influx send a Plague into the aire, why then may it not by depravation of their qualities infect, and as by poisoning corrupt both wounds and wounded bodies obnoxious to their changes and that of the ayre? Wee learnt long since by experience, that all paines but principally of wounds, grow worse in a rainy and moist season, specially because in that southerly constitution the aire replete with thicke and foggy vapours, causes the humors to abound in the body, which forthwith easily fall upon the affected parts, and cause encrease of paine. But (saith our Adversary) in the battell at *Dreux* and at *S. Dennis* which were fought in winter, there dyed a great number of men who were wounded by Gunshot: This I confesse is true; but yet I deny, that it was occasioned by applying suppuratives, or corrosives, but rather by the vehemencie and largenesse of their wounds, and the spoile the Bullet made in their members, but above all by reason of the cold. For cold is most hurtfull to wounds and ulcers (as *Hippocrates* testifies) it hardens the skinne and causes a Gangrene. If this my Gentleman had beene with mee in the seige of *Metz*, he might have seene the Legges of many souldiers to have rotted, and presently taken with a Gangrene to have fallen away, by the onely extremitie of cold; If he will not beleieve me, let him make tryall himselfe; and goe in winter to the Chappell at Mount *Senis* one of the Alpine hills, where the bodies of such as were frozen to death in passing that way are buried, and hee shall learne and feele how true I speake. In the meane time I thinke it fit to confute the last point of his reprehension.

The similitude
betweene
Thunder and
great Ordiz-
nance, main-
tained.

He cavills for that I compared Thunder and Lightning with the discharging peices of Ordinance. First he cannot denie but that they are alike in effects. For it is certaine that the flame arising from Gunpowder set on fire, resembles Lightning; in this also that you may see it before you heare the cracke or report. I judge for that the eye almost in a moment perceives its object; but the eare cannot but in some certaine space of time, and by distinct gradations. But the rumbling noise is like in both, and certainly the report of great Ordinance may bee heard sometimes at forty miles distance, whilst they make any great battry in the beleiging of Citties.

Besides also, Iron Bullets cast forth with incredible celerity by the fiered Gunpowder, throw downe all things with a horrid force, and that more speedily and violently by how much they resist the more powerfully by their hardnesse. They report that Lightning melts the money not hurting the purse; Now many by the onely violence of the aire agitated and vehemently mooved by shooting a peice of Ordinance, as touched with Lightning, have dyed in a moment, their bones beeing shivered and broken, no signe of hurt appearing in the skinne.

The smell of Gunpowder when it is fiered, is hurtfull, firy and sulphurous, just like that which exhales or comes from bodies killed with Lightning. For men doe not onely shunne this smell, but also wilde Beasts leave their Dennes if touched with Lightnings. Now the cruelty of great Ordinance makes

no lesse spoyle amongst buildings, nor slaughter amongst men and beasts, than Lightnings doe, as wee have formerly shovne by examples, not onely horrid to see, but even to heare reported, as of Mines, the Arcenall of *Paris*, the Cittie of *Malignes*. These may seeme sufficient to reach, that Thunder and Lightning have a great similitude with the shooting of great Ordinance, which notwithstanding I would not have alike in all things. For they neither agree in substance, nor matter, but onely in the manner of violent breaking asunder the objects.

Now let us see and examine what manner of cure of wounds made by Gunshot our adversarie substitutes for ours. For hee would have suppuratives used and applied, yet such as should not be hot and moist in qualitie, or of an Emplasticke consistence, but hot and dry things. For (saith hee) here is not the same reason as in Abscesses, where the Physition intends nothing but suppuration. But heere because a confusion is present with the wound, this requires to bee ripened with suppuratives, but the wound to be dried.

Now to answer this objection, I will referre him to *Galen*, who will teach him the nature of suppuratives, from whom also hee may learne that great regard is to be had of the cause and more urgent order in the cure of compound diseases; then would I willingly learne of him, whether he can heale a wound made by Gunshot, not first bringing that which is confused to perfect maturitie. If hee affirme hee can, I will be judged by whatsoever Practitioners hee will, to judge how obscure these things are. Whereby you may the better understand there is nothing more commodious than our *Basilicon* and oyle of Whelpes to ripen wounds made by Gunshot, if so bee that putrefaction, corruption, a Gangreen or some other thing doe not hinder. Then would hee have *Oxycrate* poured into these wounds to stay their bleeding, which if it cannot so bee stayed, hee would have a medicine applied consisting of the white of an Egge, Bole Armenicke, oile of Roses and salt. But I leave it to other mens judgement, whether these medicines have power to stay bleeding if put into the wound; certainly they will make it bleede the more. For Vinegar seeing it is of a tenuious substance and biting, it is no doubt but that it will cause paine, defluxion and inflammation.

To which purpose I remember I put to stanch bleeding, for want of another remedie, a medicine wherein was some Vinegar, into a wound received by a Moore, an attendant of the Earle of *Rossy*, hurt with a Lance, run through his arme before *Bologne* by an English horseman. But he comes againe to mee a little after, complaining and crying out that all his arme burnt like fire; wherefore I was glad to dresse him againe, and put another medicine into his wound, and layd an astringent medicine upon the wound, but poured it not therein.

And then above all other remedies hee extolls his Balsame composed of Oyle of Waxe, and Myrrhe beaten together with the white of an Egge; which hee saith is equall in operation to the naturall Balsame of *Peru*. For hee affirms that this hath a facultie to consume the excrementitious humidity of wounds, and so strengthens the parts that no symptome afterwards troubles them. Yet hee saith, this doth not so well heale and agglutinate these wounds, as it doth others which are cut. Verily it is ridiculous to thinke that confused wounds can bee healed after the same manner as simple wounds may, which onely require the uniting of the loosened continuities.

Therefore neither can these Balsames be fit remedies to heale wounds made by Gunshot, seeing by reason of their drynesse they hinder suppuration, which unlesse it be procured the patient cannot be healed. Wherefore such things ought not to be put into wounds of this nature, before they be ripened, washed and clesed from their filth. Yet can I scarce conceive, where we shall be able to finde out so many Chymists which may furnish us with these things sufficiently to dresse so many wounded souldiers as usually are in an Army, or whence the souldiers shall have sufficient meanes to beare the charge thereof. Also that which he saith is absurd, that these Balsames must bee put into the wounds without Tents; and presently forgetting himselfe, hee saith, It will not bee amisse, if there bee a little and slender Tent put into the wound, which may onely serve to hinder the agglu-

Our adversa-
ries method,
and manner of
cure; repro-
ved.

Gal. lib. 9.
simpl. 10. Meth.
rhod.

Vinegar put
into a wound
doth not stay
but causes
bleeding.
A History.

Balsmes are fit
to heale simple
but not confu-
sed wounds.

Egyptiacum
howsoever
made is a clen-
fer not a sup-
purative.

tination thereof. But how can these Balsames come to the bottomes of wounds without Tents, when as it is their chiefe propertie to carry medicines even to the innermost parts of the wounds, and alwayes keepe open a free passage for the evacuation of the quitture? But it is note worthy, that after hee hath rejected *unguentum Egyptiacum*, hee neverthelesse bids to apply it, from the beginning untill the contusion come to perfect maturation, dissolving it in a decoction of the tops of wormewood, *S. Iohn wurt*, the lesser Centory and Plantaine, and so injecting it into the wound. Besides also a little after hee gives another way of using it, which is, to boyle a quantity of Hony of Roses in plantaine water, carefully sciming it, untill it bee boiled to the consistence of Hony, and then to adde as much *Egyptiacum* thereto, and so to make an oymntment most fit to bring these wounds to supputation. But I leave it for any skillfull in Chirurgery to judge, whether such medicines can bee suppuratives, or whether they bee not rather deterfives. Last of all hee writes, that these wounds must bee drest but every fourth day. And if there bee a fracture of the bone joynd with the wound, then to moove nothing after the first dressing untill the eighth day after; then presently in another place hee saith, it will bee good, and expedient, to drop ten or twelve droppes of the formerly described Balsame every day into the wound. Verily such doctrine which neyther agrees with its selfe nor the truth, cannot but much puzzle a Novice and young Practitioner in Chirurgery, who is not yet versed in the Art, or the operations thereof.

CHAP. XIII.

Another Apologic, against those who have laboured with new reasons to proove, that wounds made by Gunshot are poysoned.

The occasion
of this Apo-
logic.



The reasons
of our adver-
saries that the
Bullets may
be poysoned,
set downe and
confuted.

OME few monthes agoe, I visited a patient together with some learned Physitions and skillfull Chirurgions. Now they, as it oft times happens, in way of discourse, begun to argue of the condition and quality of wounds made by Gunshot, and endeavoured to proove that they might be poysoned, by five reasons. Not truly through the occasion of the Gunpowder, for they all confessed that it was free from poyson, whether you have regard to its essence, or to its composition; but by the Bullet, into which the poyson may bee transfused and incorporated. The first reason is, that Lead seeing it is of a rare and spongy nature, which the easinesse of melting and softnesse argues, is very fit to drinke and soake in what liquors so ever you please. But me thinks this conclusion is very weake; for in all mixtures made by Art, such as this is whereof wee speake, there are two things to be considered; that is to say, the matter of the things which enter into the mixture, and the forme: for the matter, such bodies must be eyther liquid, or soft or friable; and lastly such as may be broken and divided into small particles, that so they may easily in all parts concur and bee conjoynd and united. But for their forme, there ought to be a certaine affinitie, consent and sympathy. You may perceive this by water and oyle; for each of them though of a liquid substance, and such as may easily bee mixed with divers other things, yet cannot they bee mixed the one with the other by reason of their antipathy of formes. For thus gold and silver are so agreeing with Lead, that as oft as they are molten, Lead is mixed with them. But Brasse shuns Lead as much as gold and silver fly Tinne and white Lead. If therefore Brasse and Lead being melted cannot bee mixed together, though contained under the same *Genus*, and common nature of Mettalls; how then can it be commixt with another thing distinct in the whole kinde, much more in *species*, and forme, to wit, poyson? Their second reason is this; Iron, say they, which is more dense, solid, and lesse porous, may receive some venenate substance and quality, as the Arrowes of the Ancients which were dipped in poyson, testifie; therefore must Lead much

much more be capable thereof. I answer, that the surface of Iron may be poysoned, but not the inner part or substance by mixture therewith. But heere the question is of union, but not of annointing or inunction.

The third reason is thus framed; Though (say they) Lead casts off and purges it selfe from the drosse and unpure parts, yet that is no argument, that it will not commix, or soake its selfe in some strangeli liquor or body; for thus Steele, being the most solid Iron, receives the temper which hardens it by the artificiall pouring upon it or quenching it in liquors contrary thereto in their whole kind. I answer, that Steele admits into it by that quenching and tempering, none of the juices or liquors wherewith it is watred or quenched. For if that were necessary, it might be better and more easily performed, when the mettall is first cast, than when it is beaten into plates, or barres; which answer shall serve to confute their fourth reason; wherein they say, that bullets may be made so poysonous by the commixture of the juices of Muncks-hood, Oleander, Crowe-foote, and other such like things which in their whole substance are contrary to ours, that the wound which is made with them can, not but be poysoned.

But I on the contrary affirme, that mixture is onely of these things, which may not onely be put, but also sticke thereto, and be mutually united; but how can water, or any other liquid juice so much as onely sticke to Lead, as that which is a solid and firme body, it is so farre from being united therewith? You may give more certaine judgement hereof by experience, than by reason; wherefore let melted Lead be put into the foresaid juices or the like; then when the lead is cold, weigh each of them severally, and you shall finde, that both of them recaine the same weight they formerly had. Which is a most certaine argument that neither the Lead hath mixed or united it selfe with the juices, nor the juices lost any part of their substance.

Their fifth reason is thus; A Bullet shot out of a Gun against some hard stone, growes not so hot, but that you may presently without any harme take it up in your hand. Therefore it is false, that the poyson commixt and united with the Bullet can bee dissipated by the fire and flash of Gunpowder. The answer to this objection is easily. For when wee say, that although the Bullet may bee infected by poyson perfectly commixt with the Lead, yet all the force of the poyson would bee dissipated by the fire; wee would have you thus to understand us, that we doe not meane this of that fire which is made by the powder at the discharging of the Peice, but of that by force whereof the molten head is mixed and conjoynd with the venenate juice, so to make one of many. For this fire exercising its force upon the venenate juices hindred by the intercourse of no *Medium*, and that for some space of time, and not for an instant, it may, if not consume, yet much weaken their strength.

If there be any, who will not bee satisfied by these reasons, let him consult, and reade *Matthiolus*. There are (saith hee) some of these latter times wholly ignorant of things, who (if wee may say the truth) have beene so madly foolish, that they said it was fit and requisite to put Treacle and Mithidate and such like Antidotes amongst Gold and Silver that was melted to make Cuppes, that so receiving the faculties of the Antidote they might resist poyson. But how absurd and ridiculous their opinion is, let them judge (for it needs no clearer reproofe) who have but a little knowledge in naturall things, but chiefly in Mettalls.

These are my reasons, these the authorities of men excelling in learning and judgement, that confirme me in my ancient and former opinion, that wounds made by Gunshot doe not partake of any venenate qualitie.

*In prefat. l.
6. Discor.*

CHAP. XV.

How wounds made by Arrowes differ from such as are made by Gunshot.

Wounds made with Arrowes and such like things, are oftentimes without contusion. But are oftentimes poysoned.

Wounds made by Arrowes and Bolts shot out of Crosse-bowes and such like things, differ chiefly in two things, from these which are made by Gunshot. The first is, for that they are oft times without contusion, which the other never are. The other is, for that they oft times are poysoned. In both these respects, their cure is different from the other. But the cure of these wounds made by Arrowes is different in it selfe, by reason of the variety and divers sorts of Darts or Arrowes.

CHAP. XVI.

Of the diversities of Arrowes and Darts.

The differences of Arrowes.
In matter.
In figure.

In bignes.
In number.
In making.

In force.

Arowes and Darts are different amongst themselves both in matter and in forme or figure, in number, making, facultie or strength; In matter, for that some of them are of wood, some of Reeds, some are blunt headed, others have piles or heads of Iron, Brasse, Lead, Tinne, Horne, Glasse, Bone. In figure, for that some are round, others cornered, some are sharpe pointed, some barbed, with the barbs standing either to the point, or shafts, or else acrosse, or both wayes, but some are broad and cut like a Chissell. For their bignesse, some are three foote long, some lesse. For their number, they differ in that, because some have one head, others more. But they varie in making, for that some of them have the shaft put into the head, others the head into the shaft; some have their heads nailed to the shaft, others not, but have their heads so loosely set on, that by gentle plucking the shaft, they leave their heads behind them, whence dangerous wounds proceede. But they differ in force, for that some hurt by their Iron onely, others besides that, by poyson, wherewith they are infected. You may see the other various shapes here represented to you in the following Figure.

The Figures of divers sorts of Arrowes.



CHAP. XVII.

Of the difference of the wounded parts.

THe Wounded parts are cyther fleshy or bony; some are neare the joynts, others seated upon the very joynts; some are principall, others serve them; some are externall, others internall. Now in wounds where deadly signes appeare, its fit you give an absolute judgement to that effect; least you make the Art to be scandalled by the ignorant. But it is an inhumane part, and much digressing from Art, to leave the Iron in the wound; it is sometimes difficult to take it out, yet a charitable and artificiall worke. For it is much better to try a doubtfull remedy, than none at all.

You must not leave the weapon in the wound.

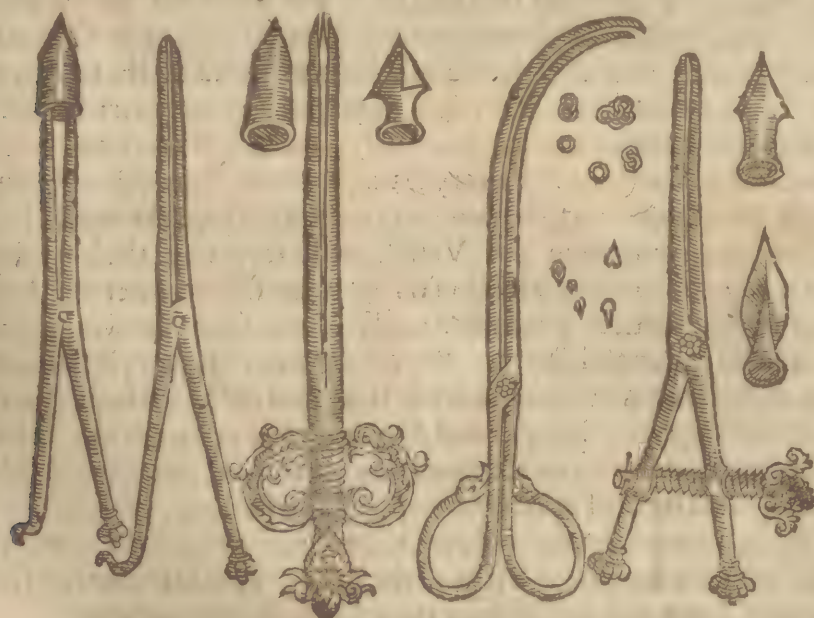
CHAP. XVIII.

Of drawing forth Arrowes.

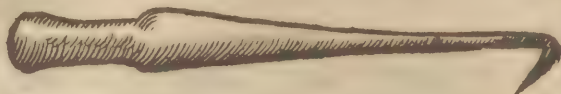
You must in drawing forth Arrowes shun incisions and dilacerations of Veines and Arteries, Nerves and Tendons. For it is a shamefull and bungling part to doe more harme with your hand, than the Iron hath done. Now Arrowes are drawne forth two wayes, that is, either by extraction, or impulsion. Now you must presently at the first dressing pull forth all strange bodies, which that you may more easily and happily performe, you shall set the Patient in the same posture, as hee stood when he received his wound; and hee must also have his Instruments in a readinesse, chiefly that which hath a slit pipe and toothed without, into which there is put a sharpe iron style, like the Gimbles we formerly mentioned for the taking forth of Bullets; but that it hath no scrue at the end, but is larger and thicker, so to widen the pipe, that so widened it may fill up the hole of the Arrowes head whereinto the shaft was put, and so bring it forth with it, both out of the fleshy as also out of the bony parts, if so bee that the end of the shaft be not broken, and left in the hole of the head. That also is a fit Instrument for this purpose, which opens the other end toothed on the outside, by pressing together of the handle. You shall finde the Iron or head that lies hid by these signes, there will be a certaine roughnesse and inequalitye observable on that part if you feele it up and downe with your hand; the flesh there will be bruised, livid, or blacke, and there is heavinesse and paine felt by the patient both there and in the wound.

The manner of drawing forth Arrowes and such weapons.

A deliniation of Instruments fit to draw forth the heads of Arrowes and Darts, which are left in the wound without their shafis.



A hooked Instrument fit for to draw forth strange bodies, as peices of Maile, and such other things as it can catch hold of, which may also bee used in wounds made by Gunshot.



But if by chance either Arrows, Darts or Lances, or any winged head of any other weapon, bee run through and left sticking in any part of the body, as the Thigh, with a portion of the shaft or staffe shivered in peices, or broken off; then it is fit the Chirurgeon with his cutting mullets should cut off the end of the staffe or shaft, and then with his other mullets plucke forth the head, as you may see by this Figure.

CHAP. XIX.

How Arrows broken in a wound may be drawne forth.

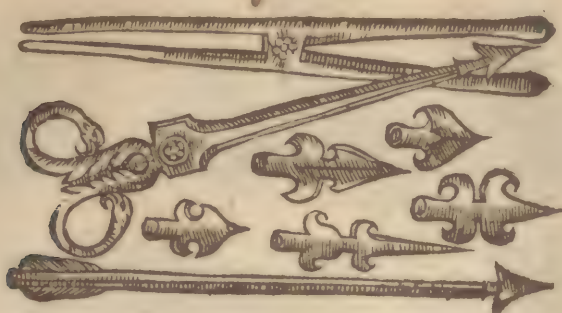
When to draw forth the weapon on the contrary side.



When by the same way it went in.

But if it chance that the weapon is so broken in the wound, that it cannot bee taken hold on by the formerly mentioned Mullets, then must you draw, or plucke it out with your Crane, or Crowes bill, and other formerly described Instruments. But if the shaft be broken neare the head, so that you cannot take hold thereof with your Cranes bill, then you shall draw it forth with your Gimblet which we described before to draw forth bullets; for if such a Gimblet can be fastened in Bullets, it may farre better take hold of wood. But if the head be barbed, as usually, the English arrowes are, then if it may be conveniently done, it will be very fitting to thrust them through the parts. For if they should be drawne out the same way they went in, there would bee no small danger of breaking or tearing the Vessells and Nerves by these hooked barbes. Wherefore it is better to make a section on the other side whither the head tended, and so give it passage forth if it may bee easily done; for so the wound will bee the more easily clenfed and consolidated. But on the the contrary, if the point tend to any bone, or have many muscles or thicke flesh against the head thereof, as it happens sometimes in the Thighes, Legges and Armes; then you must not thrust the head thorough, but rather draw it out the same way it came in, dilating the wound with fit Instruments, and by skill in Anatomie shunning the larger Nerves and Vessells. Therefore for this purpose put a hollow Dilater into the wound, and therewith take hold of both the barbes or wings of the head; and then take fast hold of the head with your Cranes-bill, and so draw them forth all three together.

A Dilater hollowed on the inside, with a Cranes-bill to take hold of the barbed head.



CHAP. XX.

What to be done, when an Arrow is left fastned or sticking in a bone.

B

Ut if the weapon be so depaſt and faſtned in a bone that you cannot drive it forth on the other ſide, neither get it forth by any other way than that it entred in by; you muſt firſt gently moove it up and downe, if it ſticke very faſt in, but have a ſpeciall care that you doe not breake it, and ſo leave ſome fragment thereof in the bone; then take it forth with your Crowes bill, or ſome other fit Inſtrument formerly deſcribed. Then preſſe forth the blood, and ſuffer it to bleed ſomewhat largely, yet according to the ſtrength of the Patient and nature of the wounded part. For thus the part ſhall be eaſed of the fulneſſe and illneſſe of humors, and leſſe moleſted with inflammation, putrefaction and other ſymptomes which are cuſtomarily feared. When the weapon is drawne forth, and the wound once dreſſed, handle it, if ſimple, as you doe ſimple wounds; if compound, then according to the condition and manner of the complication of the effects; Certainly the Oyle of Whelpes formerly deſcribed is very good to allwage paine. To conclude, you ſhall cure the reſt of the Symptomes according to the method preſcribed in our Treatiſe of wounds in generall, and to that wee have formerly delivered concerning wounds made by Gunſhot.

A Caution.

The benefit of bleeding in wounds.

CHAP. XXI.

Of poyſoned wounds.

I

F theſe wounds at any time proove poyſoned, they have it from their primitive cauſe, to wit, the empoiſoned Arrowes, or Darts of their enemies. You may finde it out both by the propertie of the paine; if that it bee great and pricking, as if continually ſtung with Bees, for ſuch paine uſually enſues in wounds poyſoned with hot poyſon, as Arrowes uſually are; Alſo you ſhall know it by the condition of the wounded fleſh; for it will become pale and grow livid, with ſome ſignes of mortification. To conclude, there happen many and maligne ſymptomes upon wounds which are empoiſoned, being ſuch as happen not in the common nature of uſuall wounds. Therefore preſently after you have plucked forth the ſtrange bodies, encompaſſe the wound with many and deepe ſcarrifications, apply ventoles with much flame, that ſo the poyſon may bee more powerfully drawne forth; to which purpoſe the ſucking of the wound, performed by one whoſe mouth hath no ſoareneſſe therein, but is filled with oyle, that ſo the poyſon which he ſucks may not ſticke, nor adhere to the part, will much conduce. Laſtly, it muſt be drawne forth by rubefying, veſicatory and cauſtick medicines, and aſſailed by ointments, cataplaſmes, emplaſters, and all ſorts of locall medicines.

The ſignes of poyſoned wounds.

Remedies in poyſoned wounds.

The end of the Eleventh Booke.



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OF CONTUSIONS AND GANGREENS.

THE TWELFTH BOOKE.

CHAP. I.



Contusion, according to *Galen*, is a solution of Continuity in the flesh or bone, caused by the stroke of some heavy and obtuse thing, or a fall from an high. The symptome of this disease is by *Hippocrates* called *Peliosis*, and *Melasma*, that is to say, blacknesse & blewnesse; the Latins tearme it *Sugillatum*. There are divers sorts of these Sugillations or blacknesse, according as the blood is poured forth into the more inward or outward part of the body. The blood is poured

*Gal. Lib. de
artu confus.*

*Sec. 2. lib. de
fracturis.*

Causes of
Bruises and
Sugillations.

forth into the body when any (for example) falls from an high, or hath any heavy weight falls upon him, as it often happens to such as worke in Mines, or are extremely racked or tortured; and sometimes by too loud and forcible exclamation. Besides also by a Bullet shot through the body, blood is poured forth into the bellies, and so often evacuated by the passages of the Guts and bladder. The same may happen by the more violent and obtuse blowes of a hard Trunchion, Club, Stone, and all things which may bruise and presse the blood out of the vessells either by extending or breaking them. For which causes also the exterior parts are contused, or bruised sometimes with a wound, sometimes without, so that the skinn being whole, and as farre as one can discern, untoucht, the blood poures it selfe forth into the empty spaces of the muscles, and betweene the skinn and muscles; which affect the Ancients have tearmed *Ecchymosis*; *Hippocrates* calls it by a peculiar name *Nausiosis*, for that in this affect the swollne veines seeme as it were to vomit, and verily doe vomit or cast forth the superfluous blood which is contained in them. From these differences of Contusions are drawne the indications of curing, as shall appeare by the ensuing discourse.

*Sec. 2. lib.
de fract.*

CHAP. II.

Of the generall cure of great and enormous Contusions.



He blood poured forth into the body, must bee evacuated by visible and not visible evacuation. The visible evacuation may be performed by bloodletting, Cupping-glasses, hornes, scarification, horeseleeches and fit purgative medicines; if so bee the patient have not a strong and continuall feaver; The not visible evacuation is performed by resol-

Ad sentent. 62.
feli. 3. lib. de
Arterial.

A potion to
dissolve and
evacuate clot-
ted blood.

A hot sheeps
skinne.

A dissolving
oyntment.

A sudorifick
potion to dis-
solve congeal-
led blood.

Syrups hind-
ring putri-
faction and
congealing of
blood.

A drinke for
the same pur-
pose.

A powder for
the same.

The distilled
water of
greene Wal-
nuts.
Baths.

Lib. 3. de viſſ.
acut. & lib. 3.
de morb.

resolving and sudorifick portions, baths, & slender diet. Concerning Blood-letting Galens opinion is plaine, where he bids, in a fall from an high place, and generally for bruises upon what part soever they be, to open a veine, though the parties affected are not of a full constitution; for that unlesse you draw blood by opening a veine, there may inflammations arise from the concreate blood, from whence without doubt evill accidents may ensue. After you have drawne blood give him foure ounces of Oxycrate to drinke; for that by the tenuity of its substance hinders the coagulation of the blood in the belly, or in stead thereof you may use this following potion. *R. rad. Gentiana ʒij; bulliant in Oxycrato; in colatura dissolve rhei electi ʒj. fiat potio.* These Medicines dissolve, and cast forth by spetting and vomite the congealed blood, if any thereof be contained in the ventricle or lungs; it will be expedient to wrap the patient presently in a sheeps skinne, being hot and newly taken from the sheepe, and sprinkled over with a little myrrhe, cresses and salt, and so to put him presently in his bed, and then cover him so that he may sweat plentifully. The next day take away the sheeps-skinne, and annoint the body with the following anodyne and resolving unguent. *R. unguent. de alibaa ʒvj. olei Lumbric. chamam. anethi. an ʒij. terebinth. veneta ʒiiij. farina fenugra. rosar. rub. pulverisat. pul. myrtillorum, an ʒj. fiat litus ut dictum est.* Then give this potion which is sudorifick and dissolves the congealed blood. *R. Ligni guaiaci ʒviij. rad. enula camp. consolid. majoris, ireos Florent. polypod. querni. seminis coriandri, anisi, an ʒʒ. glycyrrhiz. ʒij. napea, centaurea, caryophyl. cardui ben. verbena, an. m. f. aque fortanæ lib. xij.* Let them bee all beaten and infused for the space of twelve houres, then let them boyle over a gentle fire untill the one halfe bee consumed; let the patient drinke some halfe pinte of this drinke in the morning, and then sweate some houre upon it in his bed, and doe this for seaven or eight dayes. If any poore man light upon such a mischance, who for want of means cannot bee at such cost, it will be good, having wrapped him in a sheete, to bury him up to the chin in Dung mixed with some hay or straw, and there to keepe him, untill he have sweat sufficiently. I have done thus to many with very good successe. You shall also give the patient potions made with syrups which have power to hinder the coagulation and putrefaction of the blood; such as syrupe of Vinegar, or Lemons, of the juice of Citrons and such others to the quantitie of an ounce dissolved in scabious, or *Carduus* water. You may also presently after the fall give this drinke, which hath power to hinder the coagulation of the blood, and strengthen the bowells. *R. Rhei electi. in pul. redacti ʒj, aqua rubia majoris, & plantagin. an. ʒj. theriaca ʒʒ. Syrupi de rosis sicci, ʒʒ, fiat potus.* Let him take it in the morning for foure or five dayes. In stead hereof you may make a potion of one dramme of *Sperma ceti* dissolved in buglosse or some other of the waters formerly mentioned, and halfe an ounce of syrupe of Maiden-haire; if the disease yeeld not at all to these formerly prescribed medicines, it will be good to give the patient for nine dayes, three or foure houres before meate some of the following powder. *R. rhei torrefacti, rad. rub. majoris, centaurei, gentiana, aristolo. rotunda, an. ʒʒ. give ʒj. heereof with syrupe of Venegar and Carduus water.* They say that the water of greene Walnuts, distilled by an Alembicke, is good to dissolve congealed and knotted blood. Also you may use bathes made of the decoction of the rootes of Orris, Elecampane, Sorrell, Fennell, Marshmallowes, Water-ferne, or Ofmund the waterman, the greater Comfery; the seeds of Fenugreece; the leaves of Sage, Marjerome; the floures of Camemile, Melilote and the like. For a warme bath hath power to rarifie the skin, to dissolve the clotted blood, by cutting the tough & mitigating the acride humors, by calling them forth into the surface of the body, and relaxing the passages thereof, so that the rebellious qualities being overcome, there ensues an easie evacuation of the matter by vomit, or expectoration, if it stode in the stomacke, or be contained in the chest; but by stooles & Urine, if it lye in the lower parts; by sweates and transpiration if it lye next under the skin. Wherefore bathes are good for those who have a *Peripneumonia* or inflammation of their Lungs, or a *Pleurisie*, according to the minde of *Hippocrates*, if so be that they be used, when the feaver begins to be allwaged; for so they mitigate paine, helpe forwards suppuration, and hasten the spitting up of the purulent matter. But we would

would not have the patient enter into the bath, unlesse he have first used generall remedies, as blood-letting and purging; for otherwise there will be no small danger, least the humors diffused by the heate of the bath, cause a new defluxion into the parts affected. Wherefore doe not thou by any meanes attempt, to use this or the like remedy, having not first had the advice of a Physicion.

CHAP. III.

How we must handle Contusions, when they are joyned with a wound.

Very great Contusion forthwith requires blood-letting, or purging, or both; and these either for evacuation, or revulsion. For thus *Hippocrates* sect. 2. lib. fract. in a contusion of the Heele, gives a vomitory potion, the same day, or else the next day after the heele is broken. And then if the Contusion have a wound associating it, the defluxion must be stayed at the beginning, with an ointment made of Bole Armenicke, the whites of egges, and oyle of roses, and myrtles, with the pouders of red roses, Allome and mastich. At the second dressing apply a digestive made of the yoałke of an egge, oyle of violets and Turpentine. This following Cataplasme shal be appyled to the neare parts to help forwards suppuration. *R. rad. albae, & lilio. an. ʒiij sol. matv. violar. senecionis, an. M. ss coquantur complete, & passentur per setaceum, addendo butyri recentis & olei viol. an. ʒiij. farine volatilis quant. sufficit; fiat cataplasma ad formam pultis liquida.* Yet have a care in using of Cataplasmes, that you do not too much exceede; for too frequent and immoderate use of them makes wounds plegmonous, fordide and putride. Wherefore the wound after it is come to suppuration must be cleansed, filled with flesh and cicatrized; unlesse haply the contused flesh shall be very much torne, so that the native heate forsake it, for then it must be cut away. But if there be any hope to agglutinate it, let it be sowed, and other things performed according to Art; but the stitches must not be made so close together, as when the wound is simple, and without contusion; for such wounds are easily inflamed and swell up, which would occasion either the breaking of the thred or flesh, or tearing of the skinne.

A suppurative Cataplasme.

A caution to be observed.

How contused wounds must be sowed

CHAP. IV.

Of these Contusions which are without a wound.

IF the skinne being whole and not hurt, as farre as can be discerned, the flesh which lyes under it be contused, and the blood poured forth under the skin make an *Ecchymosis*, then the patient must be governed according to Art untill the malignant symptomes, which commonly happen, be no more to be feared. Wherefore in the beginning draw blood on the opposite side, both for evacuation and revulsion. The contused part shall be scarified with equall scarifications; then shall you apply cupping-glasses or hornes, both for evacuation of the blood which causes the tumor and Tension in the part; as also to ventilate and refrigerate the heate of the part, least it turne into an Abscesse. Neither must we in the meane while omit gentle purging of the belly. The first topicke medicines ought to bee astringives which must lye some short while upon the part, that so the Veines, and Arteries may be as it were straitened and closed up, and so the defluxion hindered; as also that the part it selfe may be strengthened. This may be the forme of such a remedy. *R. Albumina ovorum nu. iij. olei myrtini & rosacei, an. ʒj. boli armeni, & sanguin. dracon. an. ʒb. nucum cupress. gallarum, pul. aluminis usti, an. ʒij. incorporentur omnia addendo acetiparum, fiat medicamentum.* Then you shall resolve it with a fomentation, Cataplasme, and discussing emplasters.

Phlebotomie.

Scarifying. Cupping glasses.

Astringives how good in Contusions.

After astringives must follow discutives.

CHAP. V.

By what meanes the contused part may be freed from the feare and imminent danger of a Gangrene.

Sect. 2. lib. de fract.

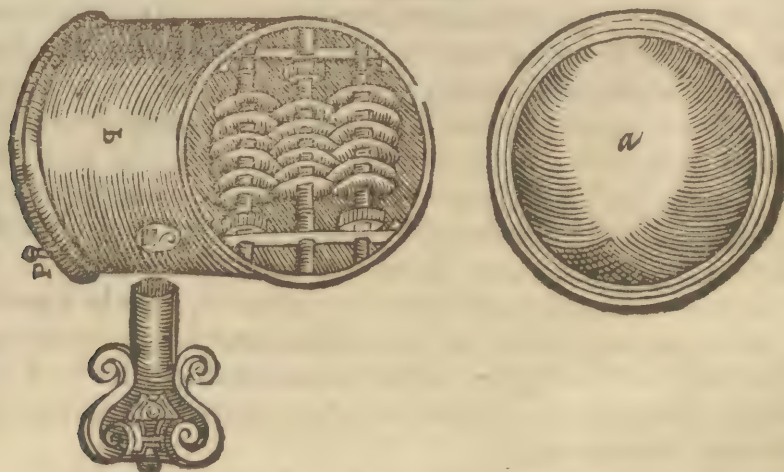
The cause of a Gangrene.

The use of a Scarificator.



Great Contusions are dangerous even for this cause, for that a Gangrene and mortification sometimes followes them; which *Hippocrates* teacheth to happen, when as the affected part is growne very hard and liquide. Wherefore when the part growes livide and blacke, and the native colour thereof, by reason of the afflux of the concreate blood, is almost extinct; chiefly to ease the part of that burden, cupping glasses and hornes shall be applyed to the part it selfe being first scarified with a Lancet, or else the following Instrument termed a Scarificator, which hath 18 little wheelles sharpe and cutting like a razour, which may be straitened and slacked by the pins noted by D. and P. This instrument is to be commended for that it performes the operation quickly and gently, for it makes 18 incisiones in the space that you make one with a Lancet or knife.

A Scarificator.



A. Shewes the cover. B. The Boxe, or Case.

A fomentation to discusse and draw to the skinne.

In sect. 2. lib. de fractur.

A discussing plaster.

Then shall you foment the part with strong Venegar wherein the roootes of radish or of Dragons, Cuckow-pint, *Salomons Seale*, *Auripigmentum* and the like have beene boyled; for such acride things doe powerfully heat, resolve and draw the concreate blood from the inner part of the body unto the skinne, which by its settling in the part affected, prohibits the entrance of the vitall spirits, the preservers of its integrity; yea also extinguisheth the native heate of the same part. Now wee must not use these things but with great discretion, least so we draw not onely that blood which is poured forth of the vessells, but also the other which is contained in the vessells. Moreover also we must not use them, unlesse when the defluxion is stayed. For small contusions (which *Galen* judgeth by the softnesse of the contused part) it will bee sufficient to apply to discusse them, Virgins waxe dissolved and mixed with Cummin seedes, Cloves, the roote of blacke Briony, (which hath a wonderfull faculty to discusse all blackenesses and sugillations) for the same purpose, you may also apply wormewood brused and so warmed in a dish and sprinkled over with a little white wine. Also fry wormewood with oyle of cammomill, branne, the powder of Cloves, and Nutmegs, adding thereto a little *aqua vita*, then put it all in a linnen cloth and apply it hot to the part. The following emplaster doth powerfully discusse congealed blood. R. *Picus nigra* ʒij. Gum. *Elemi*. ʒiʒ. *Syracis liquida* & *serebintb. com.* an. ʒʒ. pul. *sulphuris vivi*. ʒj. Liquefiant simul, fiat Emplastrum; and let be spred upon leather and so applyed.

CHAP. VI.

Of that strange kinde of symptome which happens upon contusions of the ribbes.



He flesh contused sometimes by great violence becomes mucous and swolne, or puffed up like Veale, which the butchers blow up, the skinne remaining whole. This is seene and happens chiefly in that flesh which is about the ribs; for this being bruised either by a blow, or fall, or rentencie, or any other such like cause; if you presse it with your hand, a certaine windisse goeth out thereof with a small whyzzing, which may be heard, and the print of your fingers will remaine as in *adema's*. Vnlesse you quickly make fit provision against this symptome, there is gathered in that space which the flesh departing from the bones, leaves empty, a certaine purulent *sanies*, which divers times foules and corrupts the ribs. It will be cured, if the mucous tumor be presently pressed, and straightly bound with ligatures, yet so that you hinder not the breathing, when as the affect happens upon the ribs and parts of the Chest. Then apply to the part a plaister of *Oxycroceum* or *diachylon Treatum* with the emplaster *de meliloto*; also discussing fomentaions shall be used.

Hip. sect. 3. lib. de art. sent. 58. & 65.

Remedies for a mucous and flatulent tumor of the ribbes. The cause.

The cause of such a tumor is a certaine mucous flegme; seeing that nature is so weake that it cannot well digest the nourishment, and assimilate it to the part: but leaves something as it were halfe concocted. No otherwise than the conjunctive coate of the eye is sometime so lifted up and swolne by a stroake, that it startes as it were out of the orbe of the eye, leaving such filth or matter as wee see those which are bleard eye to be troubled withall; because the force and naturall strength of the eyes is become more weake, either by the fault of the proper distemperature, or the abundance of moysture which flowes thither, as it happens in those tumors which are against nature. For flatulencies are easily rayfed from a watrish and flegmaticque humors wrought upon by weake heate, which mixed with the rest of the humor, the tumor becomes higher.

CHAP. VII.

A discourse of Mumia, or Mummie.



Eradventure it may seeme strange what may be the cause, why in this Treatise of curing contusions, or bruises, I have made no mention of giving Mummie either in bole, or potion to such as have falne from high places, or have beene otherwise bruised, especially seeing it is so common and usuall, yea the very first and last medicine of almost all our practitioners at this day in such a case. But seeing I understood, and had learnt from learned Physicians, that in using remedies, the indication must alwaies be taken from that which is contrary to the disease, how could I? how can any other give Mummie in this kinde of disease, seeing we cannot as yet know what Mummie is, or what is the nature and essence thereof? So that it cannot certainly be judged, whether it have a certaine property contrary to the nature and effects of contusions. This how it may have, I have thought good to relate somewhat at large; neither doe the Physicians who prescribe Mummie, nor the Authours that have written of it, nor the Apothecaries that sell it, know any certainty thereof. For if you reade the more ancient, *Serapio*, and *Avicen*, or the moderne *Matthiolus* and *Thevet*, you shall finde quite different opinions. Aske the Merchants who bring it to us, aske the Apothecaries who buy it of them, to sell it to us, and you shall heare them speake diversly hereof, that in such variety of opinions, there is nothing certaine and manifest. *Serapio* and *Avicen* have judged Mummie to bee nothing else but *Pissasphaltum*; now *Pissasphaltum* is a certaine froth or foame rising from the Sea, or Sea waters, this same foame as long as it swimmes upon the water is soft and in some sort

Mummie a frequent and usuall medicine in contusions.

The reason that the Author makes no mention thereof amongst his medicines.

The opinion of the Arabians concerning it.

Lib. 4, cap. 84.

Another opinion of Mummie.

Another.

What over Mummie usually is.

Mummie is no way good for contusions,

But hurtfully and how?

liquid: but being driven upon the shore by force of tempest, and working of the sea, and sticking in the cavities of the rockes, it concretes into somewhat a harder substance than dried pitch, as *Dioscorides* saith. *Belonius* saith, that Mummie is onely knowne to *Egypt* and *Greece*. Others write that it is mans flesh, taken from the carcases of such as are dead, and covered over in the sandes in the desertes of *Arabia*; in which Countrey they say the sands are sometimes carried and rayed up with such force and violence of the windes, that they overthrow and suffocate such passingers as they meete withall; the flesh of these dried by the sand and winde they affirme to be Mummy.

Mathiolus following the more usuall and common opinion, writes that Mummie is nothing else than a liquor flowing from the Aromaticke embalmments of dead bodies, which becomes dry and hard. For understanding whereof you must know from all manner of antiquity, that the Egyptians have beene most studious in burying and embalming their dead; not for that end that they should become medicines for such as live, for they did not so much as respect or imagine so horride a wickednesse. But either for that they held an opinion of the generall resurrection, or that in these monuments they might have something, whereby they might keepe their dead friends in perpetuall remembrance.

Thevet not much dissenting from his owne opinion, writes that the true Mummie is taken from the monuments and stony tombes of the anciently dead in Egypt, the chinkes of which tombes were closed, and cimented with such diligence; but the enclosed bodies embalmed with precious spices with such art for eternity, that the linnen vestures which were wrapt about the presently after their death may be seene whole even to this day; but the bodies themselves, are so fresh that you would judge them scarce to have been three dayes buried. And yet in those Sepulchers and Vaultes from whence these bodies are taken, there have beene some corpes of two thousand yeeres old. The same, or their broken members are brought to Venice from Syria and Egypt, and thence disperst over all Christendom. But according to the different condition of men, the matter of their embalmments were divers; for the bodies of the Nobility or Gentry are embalmed with Myrrhe, Aloes, Saffron, and other precious spices, and Drugs; but the bodies of the common sort whose poverty and want of meanes could not undergoc such cost, were embalmed with *asphaltum* or *pissasphaltum*.

Now *Mathiolus* saith that all the Mummie which is brought into these parts is of this last kinde and condition. For the Noble men and cheefe of the province so religiously addicted to the monuments of their ancestors, would never suffer the bodies of their friends, and kindred to be transported hither for filthy gaine, and such detested use, as we shall shew more at large at the end of this worke.

Which thing sometimes mooved certaine of our French Apothecaries, men wonderous audacious, and coverous, to steale by night the bodies of such as were hanged, and embalming them with salt and Drugges they dried them in an Oven, so to sell them thus adulterated in steed of true Mummie. Wherefore wee are thus compelled both foolishly and cruelly to devoure the mangled and putride particles of the carcasses of the basest people of Egypt, or of such as are hanged, as though there were no other way to helpe or recover one bruised with a fall from a high place, than to bury man by an horrid insertion in their, that is, in mans guts. Now if this Drugges were any way powerfull for that they require, they might perhaps have some pretence, for this their more than barbarous inhumanity.

But the case stands thus, that this wicked kinde of Drugges, doth nothing helpe the diseased, in that case, wherefore and wherein it is administred, as I have tryed an hundred times, and as *Thevet* witnesses, he tryed in himselfe, when as hee tooke some thereof by the advice of a certaine Iewish Physition in Egypt, from whence it is brought; but it also inferres many troublesome symptomes, as the paine of the heart or stomacke, vomiting and stinke of the mouth.

I perswaded by these reasons, doe not onely my selfe prescribe any hereof to my patients, but also in consultations, endeavour what I may, that it bee not prescribed by others. It is farre better according to *Galens* opinion

in Method. med. to drinke some oxycrate, which by its frigidty restraines the flowing blood, and by its tenuity of substance dissolves and discusses the congealed clotts thereof. Many reasons of learned Physicians (from whom I have learned this history of Mummie) drawne from Philosophy, whereby they make it apparant, that there can be no use of this or that Mummie in contusions, or against flowing or congealed blood, I willingly omit, for that I thinke it not much beneficiall to Chirurgions to insert them heere. Wherefore I judge it better to beginne to treat of Combuſtions, or Burnes.

The effects
of oxycrate in
Contusions,

CHAP. VIII.

Of Combuſtions and their differences.



ALL Combuſtions whether occasioned by Gun-powder, or by scalding oyle, water, some mettall or what things soever else, differ onely in magnitude. These first cause paine in the part, and imprint in it an unnaturall heate. Which favouring of the fire, leaves that impression, which the Greekes call *Empyreuma*. There are more or lesse signes of this impression, according to the efficacie of the thing burning, the condition of the part burned, and stay upon the same. If the Combuſtion be superficially, the skin rises into pustles and blisters, unlesse it be speedily prevented. If it be low or deepe in, it is covered with an *Eschar* or crust, the burnt flesh by the force of the fire turning into that crusty hardnesse. The burning force of the fire, upon whatsoever part it falls, leaves a hot distemper therein, condensates, contracts, and thickens the skinn, whence paine proceedes; from paine there comes an attraction of humors, from the adjacent and remote parts. These humors presently turned into warrish or serous moyſture, whilest they seeke to passe forth, and are hindred thereof by the skinn condensed by the action of the fire, they lift it up higher, and raise the blisters which we see. Hence diverse Indications are drawne, whence proceedes the variety of medicines for burnes. For some take away the *Empyreuma*, that is, the heate of the fire (as we terme it) and assuage the paine; other hinder the rising of blisters; other some are fit, to cure the ulcer, first to procure the falling away of the *Eschar*, then to cleanse, generate flesh and cicatrize it. Remedyes fit to assuage paine, and take away the fiery heate, are of two kindes; for some doe it by a cooling faculty, by which they extinguish the preternatural heate, and repress or keepe backe the blood and humors, which flow into the parts by reason of heat & paine. Others endued with contrary faculties, are hot and attractive; as which by relaxing the skin, and opening the pores, resolve and dissipate the serous humors, which yeeld both beginning, and matter to the pustles, and so by accident assuage the paine and heat. Refrigerating things, are cold water, the water of Plantaine, Night-shade, Henbane, Hemlocke; the juyces of cooling hearbes, as Purselaine, Lettuce, Plantaine, Housleeke, Poppye, Mandrake and the like. Of these some may be compounded, as some of the fore-named juyces beaten with the white of an egge; Clay beaten and dissolved in strong Venegar; roch Alome dissolved in water, with the whites of egges beaten therein; writing inke mixed with Venegar and a little Camphire; *Vnguentum nutritum*, and also *Populeon* newly made. These and the like shall be now and then renewed chiefly at the first, untill the heate and paine be gone. But these same remedyes must be applyed warme, for if they should be layd, or put to cold, they would cause paine, and consequently defluxion; besides also their strength could not passe, or enter into the part, or be brought into action; but so applyed they assuage paine, hinder inflammation and the rising of blisters.

The reason
and symptoms
of Combuſti-
ons,

The cause of
the blisters
rising upon
burnes,

Variety of me-
dicines to take
away the heate
and assuage
the paine.

CHAP. IX.

Of hot and attractive medicines to be applyed to burnes.

How fire may
assuage the
paine of bur-
ning.



Beaten Onions
good for burns
and how.

Lib. 5. simpl.

How often in
a day these
must be dress-
ed.

Medicines for
an Eschar.

Description
of Nutritum.

Amongst the hot and attractive things which by rarifying, drawing out, and dissolving, assuage the paine and heate of combustions, the fire challenges the first place, especially when the burning is but small. For the very common people know and finde by dayly experience, that the heate of the lightly burnt part vanishes away, and the paine is assuaged, if they hold the part which is burnt some prety while to the heate of a lighted candle, or burning coales; for the similitude causeth attraction. Thus the externall fire whilest it drawes forth the fire which is internall and inust into the part, is a remedy against the disease it caused and bred. It is also an easily made and approved remedie, if they presently after the burne apply to the grieved part raw Onions beaten with some salt. Now you must note, that this medicine takes no place, if it be once gone into an ulcer, for it would increase the paine and inflammation; but if it bee applyed when the skinne is yet whole and not excoriated, it doth no such thing, but hinders the rising of pustles and blisters. Hippocrates for this cause also uses this kind of remedy in procuring the fall of the Eschar. If any endeavour to gainday the use of this remedy by that principle in Physicke, which sayes, that contraries are cured by contraries, and therefore affirme that Onions according to the authority of Galen, being hot in the fourth degree, are not good for combustions; let him know that Onions are indeed potentially hot, and actually moyst, therefore they rarifie by their hot quality and soften the skinne by their actuall moysture, whereby it comes to passe that they attract, draw forth, and dissipate the imprinted heate, and so hinder the breaking forth of pustles; To conclude, the fire as we formerly noted, is a remedy against the fire. But neither are diseases alwayes healed by their contraryes (saith Galen) but sometimes by their like; although all healing proceede from the contrary, this word contrary, being more largely and stricktly taken; for so also a Phlegmon is often cured by resolving medicines, which healeth it by dissipating the matter thereof. Therefore Onions are very profitable for the burnt parts, which are not yet exulcerated or excoriated. But there are also many other medicines good to hinder the rising of blisters; such is new horse-dung fryed in oyle of wall nuts or Roses, and applyed to the parts. In like manner the leaves of Elder or Dane-wort boyled in oyle of nuts, and beaten with a little salt. Also quinched lime poudered and mixed with *Unguentum Rosatum*. Or else the leaves of Cuckow-pint and Sage beaten together with a little salt. Also Carpenters Glue dissolved in water and anoynted upon the part with a feather, is good for the same purpose. Also thicke Vernish which pollishers or sword cutlers use. But if the paine be more vehement, these medicines must be renewed 3 or 4 times in a day and a night, so to mitigate the bitterness of this paine. But if so be we cannot by these remedies hinder the rising of blisters, then we must presently cut them as soone as they rise, for that the humor containd in them, not having passage forth, acquires such acrimonie that it eates the flesh which lyeth under it, & so causeth hollow ulcers: So by the multitude of causes & increase of matter the inflammation groweth greater, not only for nine daies (as the common people prattle) but for farre longer time; also some whiles for lesse time, if the body be neither repleat with ill humors, nor plethoricke, and you have speedily resisted the paine and heate by fit remedies. When the combustion shall be so great as to cause an Eschar, the falling away must be procured by the use of emollient and humective medicins, as of greases, oyies, butter, with a little *basilicon*, or the following oyntment.

℞. *Mucagin. psilly. & cydon. an. ℥iiij. gummi, trag. ℥ij. extrahantur cum aqua parietaria, olei lilliorum ℥iij. cera nova q. s. fiat unguentum molle.* For ulcers and excoriationes you shall apply fit remedies, which are those that are without acrimony, such as *unguentum album camphoratum, desiccativum rubrum, unguentum rosatum*, made without Venegar, or *nutritum* composed after this manner. ℞. *lithargyri auri ℥iiij.*

ol.

ol. rosar. ℥iij. ol. de papaver. ℥iij. ung. populeon. ℥iij. camphora ʒj. fiat unguentum in mortario plumbeo secundum artem. Or oyle of Egges tempered in a Leaden mortar. Also unquenched lime many times washed and mixed with *unguentum rosatum*, or fresh butter without salt, and some yolkes of egges hard roasted. Or. *R. Butyri recent. sive sale, ustulati, & colati ʒvj. vitell. ovor. iij. cerus. lota in aqua plantag. vel rosar. ʒB. tuthia similiter lota, ℥iij. plumbi usti, & loti, ʒij. Misceantur omnia simul. fiat linimentum ut decet.* Or else, *R. cort. sambuc. viridis, & olei rosar. an. lib. j. bulliant simul lento igne, postea colentur, & adde olei ovorum ℥iij. pul. ceruss. & tuthie prepar. an. ʒj. cera alba quantum sufficit, fiat unguent. molle secundum artem.* But the quantity of drying medicines may alwayes be encreased or diminished according as the condition of the ulcer shall seeme to require. The following remedies, are fit to allwage paine, as the mucilages of Line seedes, of the seedes of *Psilium*, or Flea-wort, and quinces extracted in rosewater, or faire water, with the addition of a little camphire; and least that it dry too speedily, adde thereto some oyle of Roses. Also five or sixe yoalkes of egges mixed with the mucilages of Line seede, the seede of *Psilium*, and quinces often renewed, are very powerfull to allwage paine. The women which attend upon the people in the Hospitall in *Paris*, doe happily use this medicine against burnes. *R. Lard. confisi libram unam;* let it be dissolved in Rosewater, then strained through a linnen cloath, then wash it foure times with the water of hen-bane or some other of that kinde, then let it be incorporated with eight yolkes of new layd egge, and so make an oynment. If the smart be great, as usually it is in these kindes of wounds, the ulcer or sores shall be covered over with a peice of Tiffany, least you hurt them, by wiping them with somewhat a course cloath, and so also the matter may easily come forth, and the medicines easily enter in. Also you must have a care when the eyelids, lippes, sides of the fingers, necke, the armpits, hammes, and bending of the elbow are burnt, that you suffer not the parts to touch one the other, without the interposition of some thing; otherwise in continuance of time they would grow and sticke together. Therefore you shall provide for this, by fit placing the parts, and putting soft linnen ragges betweene them. But you must note, that deepe combustions, and such as cause a thicker *Eschar*, are lesse painefull, than such as are but onely superficially. The truth hereof you may perceive by the example of such as have their limbes cut off, and seared or cauterised with an hot Iron; for presently after the cauterising is performed they feele little paine. For this great combustion takes away the sense, the vehemencie of the sensory or thing affecting the sense, depriving the sensitive parts of their sense; As wee have formerly noted when we treated of wounds and paines of the Nerves. The falling away of such *Eschars* shall be procured by somewhat a deepe scarification which may pierce even to the quicke, that so the humors which lye under it may enjoy freer perspiration, and emollient medicines may the freelier enter in, so to soake, moysten and soften the *Eschar* that it may at length fall away. The rest of the cure shall be performed by detergent and sarcoticke medicines, adding to the former oyntments metalline powders, when the present necessitie shall seeme so to require. But wee cannot justly say in what proportion and quantity each of these may be mixed, by reason of that variety which is in the temper and consistence of bodyes, and the stubbornesse and gentlenesse of diseases. After a burne the scarre which remaineth is commonly rough, unequall, and ill favoured: therefore wee will tell you in our treatise of the plague how it must be smoothed, and made even.

I must not here omit to tell you, that Gunpowder set on fire doth often so penetrate into the flesh, not ulcerating nor taking off the skinne, and so insinuate and throughly fasten it selfe into the flesh by its tenuity, that it cannot be taken or drawne out thence by any remedies, no not by *Phenigmes* nor vesicaryes, nor scarification, nor ventoses, nor hornes, so that the prints thereof alwayes remaine, no otherwise than the markes which the Barbarians burne in their slaves which cannot afterwards be taken away or destroyed by any Art.

A remedy for
burnes com-
monly used in
the Hospitall
of Paris.

Why deepe
combustions
are lesse paine-
full than super-
ficialie.

Markes or
spots made in
the face by
cornes of
Gunpowder
cannot be tak-
en away.

CHAP. X.

Of a Gangrene and Mortification.



ERTAINELY the maligne symptomes which happen upon wounds, and the solutions of Continuity are many, caused either by the ignorance or negligence of the Chirurgion; or by the Patient, or such as are about him; or by the malignity and violence of the disease; but there can happen no greater than a Gangrene, as that which may cause the mortification and death of the part, and oft times of the whole body; wherefore I have thought good in this place to treat of a Gangrene, first giving you the definition, then shewing you the causes, signes, prognosticks, & lastly the manner of cure. Now a Gangrene is a certaine disposition, and way to the mortification of the part, which it seafeth upon, dying by little and little. For when there is a perfect mortification, it is called by the Greekes *Sphacelos*, by the Latines *Syderatio*, our countrymen terme it the fire of Saint *Anthony* or Saint *Marcellus*.

Gal. 21 ad
Glaucnem.

CHAP. XI.

Of the generall and particular causes of a Gangrene.



The generall
cause of a
Gangrene.

The prticular
causes.

Cold causeth
a Gangrene.

HE most generall cause of a Gangrene is, when by the dissolution of the harmony and joynt temper of the foure first qualities, the part is made unapt to receive the faculties, the Naturall, Vitall, and Animall spirits, by which it is nourished, lives, feelles, and mooves. For a part deprived by any chance of these, as of the light, languishes and presently dyes. Now the particular causes are many: and these either primitive; or antecedent. The primitive or externall are combustions, caused by things either actually or potentially burning; actually as by fire, scalding oyle or water, gunpowder fired and the like. But potentially by acride medicines; as Sublimate, vitrioll, potentiall cauteries and other things of the same nature: for all these cause a great inflammation in the part. But the ambient ayre may cause great refrigerations, and also a Gangrene, which caused *Hippocrates lib. de Aer.* to call great refrigerations of the braine *Sphacelisme*. Therefore the unadvised and unfit application of cold and narcoticke things, a fracture, luxation and great contusion, too strait bandages, the biting of beasts, especially of such as are venomous; a puncture of the Nerves and Tendons, the wounds of the nervous parts and joynts, especially in bodyes which are plethorike and replete with ill humors, great wounds whereby the vessels which carry life are much cut, whence an *aneurisma*, and lastly many other causes, which perturb that harmony of the foure prime qualities which we formerly mentioned, and so inferre a Gangrene.

CHAP. XII.

Of the Antecedent causes of a Gangrene.



How defluxions
cause a
Gangrene.

An uncureable
Gangrene.

OW the antecedent or internall and corporeall causes of a Gangrene, are plentifull and abundant defluxions of humors hot or cold, falling into any part. For seeing the faculty of the part is unapt and unable to sustaine and governe such plenty of humors, it comes to passe that the native heate of the part is suffocated and extinct for want of transpiration. For the Arteries are hereby so shut or pent up in a strait, that they cannot performe their motions of contraction and dilatation, by which their native heate is preserved and tempered. But then the Gangrene is chiefly uncureable when the influx of humors

mours first takes hold of the bones, and inflammation hath its beginning from them. For in the opinion of *Galen*; all these kind of affects which may befall the flesh, are all so incident to the bones. Neyther onely a Phlegmon or inflammation, but also a rottenesse and corruption doth oft times first invade and beginne at the bones; for thus you may see many who are troubled with the Leprosie and French disease; to have their skinn and flesh whole and faire to looke, on whose bones notwithstanding are corrupt and rotten, and oft times are much decayed in their proper substance. This mischief is caused by a venemous matter, whose occult quality wee can scarce expresse by any other name than poyson inwardly generated. Oft times also there is a certaine acrid and stinking filth generated in flesh with a malignant and old ulcer, with which if the bones chance to bee moistned they become foule and at length mortified: of which this saying of *Hippocrates* is extant, Vlcers of a yeares continuance or longer, must necessarily foule the bone, and make the scarres hollow.

Lib. de humor. fraternatior.

Aph. 5, sect. 6.

Whither also belongs this saying of the same party; An *Erysipelas* is ill in the laying bare of a bone. But this flowing venenate and gangrenous matter is somewhiles hot as in pestilent Carbuncles, which in the space of foure and twenty houres by causing an *escharre*, bring the part to mortification: otherwhiles cold, as wee see it divers times happens in parts which are posselt with a Gangrene, no paine, tumor, blacknesse, nor any other precedent signe of a Gangrene going before. For *Iohn de Vigo* saith, that happened to a certaine gentlewoman of *Genoa* under his cure.

A Gangrene by efflux of a cold matter.

I remember the same happened to a certaine man in *Paris*, who supping merrily and without any sense of paine, went to bed, and suddainly on the night time a Gangrene seized on both his legges, caused a mortification without tumor, without inflammation; onely his legges were in some places spred over with livid, blacke and greene spots, the rest of the substance retaining his native colour: yet the sense of these parts was quite dead, they felt cold to the touch, and if you thrust your lancet into the skinn no blood came forth.

A notable History.

A Councell of Physicians being called, they thought good to cut the skinn, and flesh lying under it, with many deepe scarifications; which when I had done, there came forth a little blacke, thicke and as it were congealed blood; wherefore this remedy as also diverse other, proved to no purpose, for in conclusion a blackish colour comming into his face, and the rest of his body, he dyed franticke. I leave it to the Readers judgement, whether so speedy, and suddainly cruell a mischief could proceede from any other than a venenate matter; yet the hurt of this venenate matter is not peculiar, or by its selfe.

For oft times the force of cold, whether of the encompassing ayre, or the too immoderate use of Narcoticke medicines, is so great, that in a few houres it takes away life from some of the members, and diverse times from the whole body, as we may learne by their example, who travell in great snowes, and over mountaines congealed, and horrd with frost & yce. Hence also is the extinction of the native heate and the spirits residing in the part, and the shutting forth of that which is sent by nature to ayde or defend it. For when as the part is bound with rigide cold, and as it were frozen, they cannot get nor enter therein. Neither if they should enter into the part, can they stay long there, because they can there finde no fit habitation, the whole frame and government of nature being spoyled, and the harmony of the foure prime qualities destroyed, by the offensive dominion of predominant cold their enemy, whereby it cometh to passe, that flying back from whence they first came, they leave the part destitute and deprived of the benefit of nourishment, life, sense and motion.

Simple cold may cause a Gangrene.

A certaine Briton an Hostler in *Paris*, having drunke soundly after supper, cast himselfe upon a bed; the cold ayre comming in at a window left open, so tooke hold upon one of his legges, that when he waked forth of his sleepe, he could neither stand nor goe. Wherefore thinking onely that his leg was numbe, they made him stand to the fire; but putting it very nigh, he burnt the sole of his foote without any sense of paine, some fingers thickenesse, for a mortification had already possessed more than halfe his legge. Wherefore after he was carried to the Hospitall, the Chirurgion who

A History.

who belonged thereto, endeavoured by cutting away of the mortified legge to deliver the rest of the body from imminent death; but it proved in vaine; for the mortification taking hold upon the upper parts, he dyed within three dayes, with troublesome belching and hicketting, raving, cold sweate, and often swoounding. Verily all that same winter, the cold was so vehement that many in the Hospitall of *Paris* lost the wings or sides of their nose-thrills, seized upon by a mortification without any putrefaction.

What parts
are usually tar-
ken by a Gang-
greene occasi-
oned by cold.

But you must note, that the Gangrene which is caused by cold, doth first and principally seaze upon the parts most distant from the heart, the fountaine of heate, to wit, the feete and legges; as also such as are cold by nature, as gristly parts, such as the nose and eares.

CHAP. XIII.

Of the signes of a Gangrene.

Sect. 2. lib. de
fractur.



What a pulse
flicke paine
is.

Signes of a
Gangrene
proceeding
of
cold.

Signes of
Gangrenes
proceeding
from strait
bandages, or
ligatures, &c.

Signes of a
Gangrene
occasioned by
a bite, pun-
cture, &c.

He signes of a Gangrene which inflammation or a phlegmon hath caused, are paine and pulsation without manifest cause, the sudden changing of the fiery and red colour into a livid or blacke, as *Hippocrates* shewes where hee speakes of the Gangrene of a broken heele. I would have you here to understand the pulsiflicke paine not onely to be that which is caused by the quicker motion of the Arteries, but that heavy and pricking which the contention of the unaturall heate doth produce by raising a thicke cloud of vapours from these humours which the Gangrene sets upon. The signes of a Gangrene caused by cold, are, if suddenly a sharpe pricking and burning paine assaileth the part; for *penetrabile frigus adurit* (i) peircing cold doth burne: if a shining rednesse as if you had handled snow, presently turne into a livid colour; if instead of the accidentall heate which was in the part, presently cold and numbnesse shall possesse it, as if it were shooke with a quartain feaver. Such cold if it shall proceede so farre as to extinguish the native heate, bringeth a mortification upon the Gangrene; also oft times convullions and violent shaking of the whole body, wondrous troublesome to the braine and the fountains of life. But you shall know Gangrenes caused by too streight bandages, by fracture, luxation, and contusion, by the hardnesse which the attraction and flowing downe of the humors hath caused; little pimples or blisters spreading or rising upon the skinne by reason of the great heate, as in a combustion; by the weight of the part occasioned through the defect of the spirits not now sustaining the burden of the member; and lastly from this, the pressing of your finger upon the part, it will leave the print thereof as in an *edema*; and also from this, that the skinne commeth from the flesh without any manifest cause.

Now you shall know Gangrenes arising from a bite, puncture, *aneurisma*, or wound in plethoricke and ill bodies, and in a part indued with most exquisite sence, almost by the same signes as that which was caused by inflammation.

For by these and the like causes, there is a farre greater defluxion and attraction of the humors than is fit, when the perspiration being intercepted and the passages stopt, the native heate is oppressed and suffocated. But this I would admonish the young Chirurgeon, that when by the forementioned signes hee shall finde the Gangrene present, that hee doe not deferre the amputation for that hee findes some sence, or small motion yet residing in the part.

For oft times the affected parts are in this case mooved not by the motion

motion of the whole muscle, but onely by meanes, that the head of the muscle is not yet taken with the Gangrene: with mooving it selfe by its owne strength, also mooves its proper and continued tendon and taile though dead already; wherefore it is ill to make any delay in such causes.

CHAP. XIII.

Of the Prognostickes in Gangreens.

Having given you the signes and causes to know a Gangrene; it is fit wee also give you the prognosticke. The fearcenesse and malignity thereof is so great, that unlesse it be most speedily withstood the part it selfe will dye, and also take hold of the neighbouring parts by the contagion of its mortification: which hath beene the cause that a Gangrene by many hath beene termed an *Esthiomenos*. For such corruption creepes out like poyson, and like fire eates gnawes and destroyes all the neighbouring parts, untill it hath spread over the whole body. For as *Hippocrates* writes, *Lib. de vulner. capitis; Mortui & viventis nulla est proportio (i)* There is no proportion betwene the dead and living. Wherefore it is fit presently to separate the dead from the living; for unlesse that be done, the living will dye, by the contagion of the dead. In such as are at the point of death a cold sweat flowes over all their bodyes: they are troubled with ravings, and watchings, belchings, and hicketing molest them; and often swooundings invade them, by reason of the vapours abundantly and continually raysed from the corruption of the humors and flesh, and so carryed to the bowells and principall parts, by the Veines, Nerves, and Arteries. Wherefore when you have foretold these things to the friends of the patient; then make haste to fall to your worke.

Why a Gangrene is called *Esthiomenos*.

The quickest impatient of the dead.

CHAP. XV.

Of the generall cure of a Gangrene.

The Indications of curing Gangrenes are to be drawne from their differences, for the cure must bee diversely instituted according to the essence and magnitude. For some Gangrenes possesse the whole member; others onely some portion thereof; some are deepe; other some superficially onely. Also you must have regard to the temper of the body. For soft and delicate bodyes, as of children, women, Eunuches, and idle persons, require much milder medicines, than those who by nature and custome, or vocation of life, are more strong and hardy, such as husbandmen, labourers, mariners, huntsmen, porters, and men of the like nature who live sparingly and hardly. Neither must you have respect to the body in generall, but also to the parts affected; for the fleshy and musculous parts, are different from the solide, as the Nerves and joynts, or more solide, as the *Vertebra*. Now the hot and moist parts, as the Privities, mouth, wombe, and fundament, are easilier and sooner taken hold of by putrifaction; wherefore we must use more speedy meanes to helpe them. Wherefore if the Gangrene be cheefely occasioned from an internall cause, he must have a dyet prescribed for the decent and fitting use of the sixe things not naturall. If the body be plethoricke, or full of ill humors; you must purge, or let blood by the advice of a Physitian. Against the ascending up of vapours to the noble parts, the heart must cheefely be strengthened with Treacle dissolved in Sorrell, or *Carduus* water; with a bole of Mithridate, the conserves of Roses & Buglosse; and with Opiates made for the present purpose according to Art; this following Apozeme shall be outwardly applyed to the region of the heart. *Re. aque rosar. & nenuphar. an. ℥iiij. aceti scillitici ℥j. corallorum santalorum alborum & rubrorum, rosar. rub. in pulver. radaetorum, & spody, an. ℥j. mithrid. & theriaca, an. ℥iiss.*

Various Indications of curing of a Gangrene.

What parts soonest taken hold of by a Gangrene.

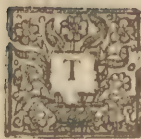
A cordiall Euphema.

℞i℞. trochiscorum de Caphura, ℞ij. flor. cordial. in pollin. redactarum, p.ij. croci ℞j. ex omnibus in pollinem redactis, fiat epibema. Which may be applyed upon the region of the heart with a scarlet clot or sponge. These are usually such as happen in the cure of every Gangrene.

CHAP. XVI.

Of the particular cure of a Gangrene:

The cure of a Gangrene made by inflammation.



The cure of a Gangrene, caused by the too plentiful and violent defluxion of humors suffocating the native heate, by reason of great Plegmons, is performed by evacuating and drying up the humors, which putrifie by delay and collection in the part. For this purpose scarifications and incisions, great, indifferent, small, deepe and superficially according to the condition of the Gangrene, are much commended; that so the burdened part may enjoy the benefit of perspiration; and the contained humors, of diffation, or evacuation of their stoothy excrements. Let incisions be made when the affect is great, deepe in, and neere to mortification. But scarifications may be used when the part first begins to putrefie; for the greatnesse of the remedy must answer in proportion to that of the disease. Wherefore if it penetrate to the bones, it will bee fit, to cut the skin and flesh with many and deepe incisions, with an incision knife made for that purpose; yet take heede of cutting the larger nerves and vessels, unlesse they be wholly putrified, for if they be not yet putrified, you shall make your incisions in the spaces betweene them; if the Gangrene be lesse, we must rest satisfied with onely scarifying it. When the scarifications and incisions are made, we must suffer much blood to flow forth, that so the conjunct matter may bee evacuated. Then must we apply and put upon it such medicines as may by heating, drying, resolving, cleansing and opening, amend and correct the putrefaction, and by peircing to the bottome may have power to overcome the virulencie already impact in the part. For this purpose Lotions made of the lye of the Ashes of fig-tree, or Oake wherein Lupines have bin thoroughly boyled are good. Or you may with lesse trouble make a medicine with salt water, wherein you may dissolve Aloes and *Egyptiacum*, adding in the conclusion a little *Aqua vite*; for *aqua vite* and calcined vitrioll are singular medicines for a Gangrene. Or, *R. acet. opimi ℞j. mel. ros. ℞iiij. syrup. acetosi ℞ij. salis com. ℞v. bulliant simul, adde aq. vite. ℞j.* Let the part be frequently washed with this medicine, for it hath much force to repress Gangrenes. After your Lotion, lay *Egyptiacum* for a Liniment and put it into the incisions; for there is no medicine, more powerfull against putrefaction, for by causing an *Eschar*, it separates the putride flesh from the sound. But we must not in this kinde of affect expect that the putride flesh may of it selfe fall from the sound; but rather cut off with your incision knife or sissors, whatsoever thereof you can, & then put to it *Egyptiacum* as oft as neede shall require. The knowledge hereof may be acquired from the colour, smell, and sensiblenesse of the flesh its selfe. The description of the *Egyptiacum*, whose wondrous effects I have often tryed in these causes, is this. *R. flor. aris, aluminis rock. mellis com. an. ℞iiij. acet. acer-rimi ℞v. salis com. ℞j. vitrioli rom. ℞℞. sublimati pul. ℞ij. bulliant omnia simul ad ignem, fiat unguent.* If the force of the putrefaction in the part be not so great, a weaker *Egyptiacum* may serve. When you have put in the *Egyptiacum*, then presently lay the following Cataplasme thereupon. For it hinders putrefaction, resolves, cleanses & dries up the virulent *sanies*, and by the dry subtilty of the parts penetrates into the meamber, strengthens it, and asswages the paine. *R. farin. fabar. bordei. orobi. lent. lupin. an. ℞℞. sal. com. mellis rosat. an. ℞iiij. succi absinth. marrub. an. ℞i℞. aloes, mastiches, myrrha, & aqua vit. an. ℞ij. oxymelitis simpl. quantum sufficit, fiat Cataplasma molle secundum artem;* Somewhat higher than the part affected, apply this following astringent, or defensive, to hinder the flowing down of the humors into the part, and the rising up of the vapours from the putride part into the whole body. *R. olei rosati, & myrtill. an. ℞℞. succi plantag. solani, sempervivi, an. ℞ij. album ovorum s. boli armeni, terra sigillata subtiliter pulverisatorum, an. ℞j. oxycrati quantum sufficit, misce ad usum dictum.*

The description of an *Egyptiacum*.

Astringents that may be used in cure of a Gangrene.

But

But these medicines must be often renewed. If the greese be so stubborne, that it will not yeeld to the described remedies, wee must come to stronger, to wit, Cauteries, after whose application, *Galen* bids to put upon it the juice of a Leeke with salt beaten and dissolved therewith, for that this medicine hath a peircing and drying faculty, and consequently to hinder putrification. But if you prevaile nothing with Cauteries, then must you come to the last remedy and refuge, that is, the amputation of the part; For according to *Hippocrates*, to extreame diseases exquisitely extreame remedies are best to be applyed. Yet first be certaine of the mortification of the part; for it is no little or small matter to cut off a member without a cause.

Gal. 2. ad
Clauonem.Aphor. 6. sect.
11.

Therefore I have thought it fit to set downe the signes, whereby you may know a perfect and absolute mortification.

CHAP. XVII.

The signes of a perfect Necrosis or Mortification.

You shall certainly know that a Gangrene is turned into a Sphacell, or mortification, and that the part is wholly and thoroughly dead, if it looke of a blacke colour, and bee colder than stone to your touch, the cause of which coldnesse is not occasioned by the frigiditie of the aire; if there bee a great softnesse of the part, so that if you presse it with your finger it rises not againe, but retaines the print of the impression. If the skinne come from the flesh lying under it, if so great and strong a smell exhale (especially in an ulcerated Sphacell) that the standers by cannot endure or suffer it; if a sanious moisture, viscid, Greene or blackish flow from thence; if it bee quite destitute of sense and motion, whether it be pulled, beaten, crushed, pricked, burnt, or cut off. Here I must admonish the young Chirurgion, that hee be not deceived concerning the losse or privation of the sense of the part.

For I know very many deceived as thus; the patients pricked on that part would say they felt much paine there. But that feeling is oft deceiptfull, as that which proceeds rather from the strong apprehension of great paine which formerly reigned in the part, than from any facultie of feeling as yet remaining. A most cleare and manifest argument of this false and deceitful sense appeares after the amputation of the member; for a long while after they will complaine of the part which is cut away.

A note concerning the
unsensibleness
of the part.

Verily it is a thing wondrous strange and prodigious, and which will scarce be credited, unlesse by such as have seene with their eyes, and heard with their eares the patients who have many moneths after the cutting away of the Legge, grievously complained that they yet felt exceeding great paine of that Leg so cut off. Wherefore have a speciall care least this hinder your intended amputation, a thing pittifull, yet absolutely necessary for to preserve the life of the patient and all the rest of his body, by cutting away of that member which hath all the signes of a Sphacell and perfect mortification; for otherwise the neglected fire will in a moment spread over all the body, and take away all hope of remedy; for thus *Hippocrates* wisheth: That Sections, Visions, and Terebrations must bee performed as soone as neede requires.

A wondrous
symptome.Sect. 7. Lib. 6.
Epidem.

CHAP. XVIII.

Where Amputation must be made.



It is not sufficient to know that Amputation is necessary; but also you must learne in what place of the dead part, it must bee done, and herein the wisdome and judgement of the Chirurgion is most apparent. Art bids

The contras
very decided.

to take hold of the quicke, and to cut off the member in the sound flesh; but the same art wisheth us, to preserve whole that which is sound, as much as in us lies. I will shew thee by a familiar example how thou maist carry thy selfe in these difficulties. Let us suppose, that the foote is mortified even to the ankle; here you must attentively marke in what place you must cut it off. For unlesse you take hold of the quicke flesh in the amputation, or if you leave any putrefaction, you profit nothing by amputation, for it will creepe and spread over the rest of the body. It befits Physicke ordained for the preservation of mankind, to defend from the iron or instrument and all manner of injurie, that which enjoyes life and health. Wherefore you shall cut off as little of that which is sound as you possibly can; yet so that you rather cut away that which is quicke, than leave behind any thing that is perished, according to the advice of *Celsus*. Yet oft times the commodity of the action of the rest of the part, and as it were a certaine ornament thereof, changes this counsell. For if you take these two things into your consideration they will induce you in this propounded case and example, to cut off the Legge some five fingers breadth under the knee. For so the patient may more fitly use the rest of his Legge and with lesse trouble, that is, he may the better goe on a wooden Legge; for otherwise, if according to the common rules of Art, you cut it off close to that which is perished, the patient will be forced with trouble to use three Legges instead of two.

An observable History.

For I so knew Captaine *Francis Clerke*, when as his foote was stricken off with an iron bullet shot forth of a man of warre, and afterwards recovered and healed up, hee was much troubled and wearied with the heavy and unprofitable burden of the rest of his Legge, wherefore though whole and sound he caused the rest thereof to be cut off, some five fingers breadth below his knee, and verily hee useth it with much more ease and facility than before in performance of any motion. Wee must doe otherwise if any such thing happen in the Arme; that is, you must cut off as little of the sound part as you can. For the actions of the Legges much differ from these of the armes, and chiefly in this that the body rests not, neither is carried upon the armes, as it is upon the feete and Legges.

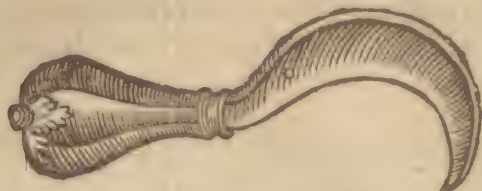
CHAP. XIX.

How the section or amputation must be performed.

The Ligature of the part.

THe first care must be of the patients strength, wherefore let him be nourished with meats of good nutriment, easie digestion, and such as generate many spirits; as with the yolkes of Egges, and bread tosted and dipped in Sacke or Muskedine. Then let him be placed, as is fit, and drawing the muscles upwards toward the sound parts, let them be tyed with a strait ligature a little above that place of the member which is to be cut off, with a strong and broad fillet like that which women usually bind up their haire withall; This ligature hath a threefold use; the first is, that it hold the muscles drawne up together with the skin, so that retiring backe presently after the performance of the worke, they may cover the ends of the cut bones, and serve them in stead of boulders or pillowes when they are healed up, and so suffer with lesse paine the compression in sustaining the rest of the body; besides also by this meanes the wounds are the sooner healed and cicatrized; for by how much more flesh or skinne is left upon the ends of the bones, by so much they are the sooner healed and cicatrized. The second is, for that it prohibites the fluxe of blood by pressing and shutting up the veines and arteries. The third is, for that it much dulls the sense of the part by stupefying it; the animall spirits by the strait compression being hindred from passing in by the Nerves. Wherefore when you have made your ligature, cut the flesh even to the bone with a sharpe and well cutting incision knife, or with a crooked knife, such as is here expressed.

A crooked knife fit for dismembring; or a dismembring knife.



Now you must note, that there usually lyes betweene the bones, a portion of certaine muscles, which you cannot easily cut with a large incision or dismembring knife; wherefore you must carefully divide it and separate it wholly from the bone, with an instrument made neatly like a crooked incision knife. I thought good to advertise thee hereof; for if thou shouldest leave any thing besides the bone to bee divided by the saw, you would put the patient to excessive paine in the performance thereof; for soft things as flesh tendons and membranes, cannot be easily cut with a saw. Therefore when you shall come to the bared bone, all the other parts being wholly cut asunder and divided, you shall nimbly divide it with a little saw about some foote and three inches long, and that as neare to the sound flesh as you can. And then you must smooth the front of the bone which the saw hath made rough.

A caution to be observed.

The Figure of such a Saw.



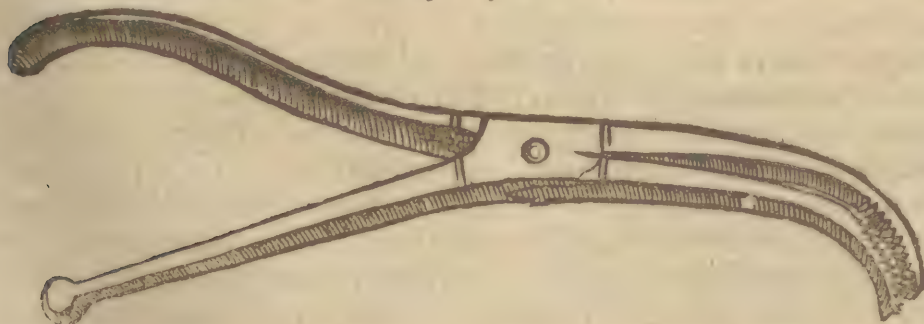
CHAP. XX.

How to stanch the bleeding when the member is taken off.



Hen you have cut off and taken away the member, let it bleed a little according to the strength of the patient, that so the rest of the part may afterwards be lesse obnoxious to inflammation and other symptomes; Then let the Veines and Arteries be bound up as speedily and streightly as you can; that so the course of the flowing blood may bee stopped and wholly stayed. Which may be done by taking hold of the vessells with your Crowes beake, whereof this is the figure.

The Crowes beake fit for to draw the vessells forth of the flesh wherein they lye hid, that so they may be tyed or bound fast.



The ends of the vessells lying hid in the flesh, must be taken hold of & drawn with this instrument forth of the muscles whereinto they presently after the amputation withdrew themselves, as all parts are still used to withdraw themselves towards their originalls. In performance of this worke, you neede take no great care, if you together

How to draw forth the vessells and binde them.

with the vessells comprehend some portion of the neighbouring parts, as of the flesh, for hereof will ensue no harme; but the vessells will so bee consolidated with the more ease, than if they being bloodlesse parts should grow together by themselves. To conclude, when you have so drawne them forth, binde them with a strong double thred.

CHAP. XXI.

How after the blood is stanchd, you must dresse the wounded member.

How the lips
of the dismem-
bered part are
to be joynd
together.



When you have tyed the Vessells, loose you Ligature which you made above the place of amputation; then draw together the lippes of the wound with foure stiches made acrosse, having taken good hold of the flesh; for thus you shall draw over the bones that part of the skinne and cut muscles drawne upwards before the amputation, and cover them as close as you can, that so the ayre may the lesse come at them, and that so the wound may bee the more speedily agglutinated. But when wee say, draw together the lippes of the wound with foure stiches, you must not so understand it, as that you must endeavour, to draw them so close as to touch each other, for that is impossible, for the stiches would sooner breake out, and so the part would lye bare. Wherefore it will be sufficient to draw them indifferent close together, that so you may suffer the skinne and flesh thereunder to enjoy its former liberty which it posselt before the drawing up, and so in fine by natures assistance, the wound may be the more easily agglutinated.

CHAP. XXII.

How you must stoppe the bleeding, if any of the bound up vessells chance to get loose.



Hebusinke hitherto being performed as we said, if peradventure it happen that any bandage of any of the vessells be unloosed, then must you againe binde the member with that kinde of Ligature which you did before the amputation thereof. Or else, which is better, more easily and lesse painefull, let your servant taking hold of the member with both his hands, pressing his fingers strait, stoppe the passage of the loosed vessell, for so hee may stanch the bleeding. Then let the worke-master take a needle some foure fingers long, square, and having sharpe edges, drawing after it a three or foure doubled strong thred. With this let him binde the vessell after the following manner. Let him thrust his needle on the outside into the flesh, some halfe fingers breadth from the loosed vessell untill he come to the end thereof, then let him put it about it, and bring it backe againe, but so that there be no more than the space of a fingers bredth betweene the going in, and comming forth of the needle. In this space let him put a linnen ragge three or foure times doubled, and thereupon bind somewhat strait the two ends of the thred together. For so he shall hinder the knot from hurting the flesh which lyes under it in the bindings, and also adde strength thereto. For so the bound up orifice of the vessell will in short space be agglutinated to the adjoyning flesh, and that so firmly, that there hath never beene scene, any one drop of blood to have flowed from a vessell so bound up. But if the blood which flowes forth proceede from any small vessell, you must not use this suture and ligature, nor make any such great matter thereof; for it will quickly be stanchd by the only application of Astringents presently to be mentioned,

The Hemorrhagie of small
vessels is not
to be regarded

CHAP. XXIII.

How to performe the residue of the cure of the amputated member.



Now must we shew what medicines are fitting to be applyed after the amputation of a member; which are Emplasticks, as these which exceedingly conduce to greene wounds. As *℞. boli arm. ℥iiij. farin. vol. ℥ij. picis, resina, an. ℥ij. pulverisentur omnia subtiliss. & simul mixtis fiat pulvis;* herewith let the wound bee strewed, and lay thereupon dry Lint; but let the following repercussive or defensitive be applyed to the member.

An emplastick
medicine.

℞. Album ovorum vj. boli arm. sang. drac. gypsi, terra sigill. aloes, mastiches, gallar. com. bust. an. ℥ij. in pollinem redigantur omnia, & bene agitentur, addendo olei rosarum & myr. sil. an. ℥j. fiat defensivum ad formam mellis. This ointment must bee applyed upon stoopes dipped in Oxycrate, and that so that it may not onely cover the cut member, but also be spread further and cover the neighbouring parts; as when the Legge is cut off, it must bee laid upon the joynt, and spread higher than the knee, some foure fingers upon the thigh; for it hath not onely a repercussive facultie, but it also strengthens the part, hinders defluxion by tempering the blood, aswaging paine, and hindring inflammation. It will also be good to moisten your double clothes and bandages in Oxycrate; then must you place the member in an indifferent posture upon a pillow stuffed with oaten huskes or chaffe, Stagges haire, or wheate branne. It must not be stirred after the first dressing (unlesse great necessity urge) for foure dayes in winter, but somewhat sooner in summer. For the ligatures wherewith the vessells are bound, they must not be loosed, or otherwise taken away, before the mouthes of the vessells are covered with their glue or flesh, lest by too much haste you cause a new flux of blood. This agglutination will be performed by applying refrigerating, astringent, and emplasticke medicines, such as this following powder.

A repercussive.

How to place
the member
and how often
to dress it.

℞. boli arm. farin. hord. picis, res. gypsi, an. ℥iiij. Aloes, nucum cup. cort. granat. an. ℥j. incorporantur omnia simul, fiat pulvis subtilis: herewith let the whole ulcer be strewed over for three or foure dayes space; which being ended, let onely the seates of the vessells be poudered therewith, and that for eight or ten dayes, so that wee neede no further doubt of the agglutination of the vessells. In the meane space let the digestive be applyed to the rest of the Vicer untill it bee come to suppuration; for then you shall give over your digestive, and betake you to deterstive and mundificative medicines: As

An emplastick
powder.

℞. terebinth. ven. lota in aqua vita ℥vj. mellis ros. colati ℥iiij. succi plantag. Apj. centaur. minoris, an. ℥ij. bulliant omnia simul usque ad consumptionem succorum: auferantur ab igne, addendo farina fab. & hord. an. ℥j. theriac. Gal. ℥℔. aloes, myrrha, aristoloch. an. ℥iiij. croci ℥j. fiat mundificativum.

Deterstives.

But seeing the case stands so that the Patients imagine they have their members yet entire, and yet doe complaine thereof (which I imagine to come to passe, for that the cut nerves retire themselves towards their originall, and thereby cause a paine like to convulsions; for as *Galen* writes in his booke, *De motu musculorum*, That contraction is the true and proper action of a nerve and muscle: and againe, extension is not so much an action as a motion:) now wee must indeavour to give remedy to this symptome. Which may be done by annointing the spine of the backe and all the affected part with the following Liniment, which is very powerfull against Convulsions, the Palsie, numnesse, and all cold affects of the nervous bodies.

Why after
dismembring
the patients
complaine of
paine as if the
part were yet
remaining on.

℞. salvia, chamapitheos, majorana, rorismar. menth. ruta, lavendula, an. m. j. flor. chamamel. melilot. summis. aneth. & hyperici, an. p. ij. baccarum lauri & juniperi an. ℥j. radicis pyrethri ℥ij. mastic. affe odorat. an. ℥℔. terebinth. venet lb. j. olei lumbr. aneth. catell. an. ℥vj. olei tere-

An ointment
for the spine
of the backe
against all
affects of the
nerves.

How to procure the falling away of the ends of the bones.

Cathæreticks.

binth. ℥iij. axung. hum. ℥ij. croci ℥j. vini albi odoriferi lib. j. cera quantum sufficit, contundenda contundantur, pulverisanda pulverisentur, deinde macerentur omnia in vino per noctem, postea coquantur cum oleo & axungia prædictis in vase duplici, fiat linimentum secundum artem, in fine adde aqua vitæ ℥iij. Besides, in dressing these wounds, the Chirurgion must use diligence to procure the falling away of the ends or scalls of the bones, which the saw and the appulse of the aire never before comming hereto, have tainted; which may be done by applying to their ends actual cauteries, that is, hot irons, in using of which you must have a speciall care that you touch not the sensible parts with fire; neither must the bones themselves bee forcibly pluckt off, but gently mooved by little and little, so that you shall thinke you and the patient have exceedingly well performed your parts if they fall away at the thirtieth day after the Amputation. All these things being performed, you shall hinder the growth of proud flesh with the cathæreticks, such as are burnt vitrioll, the powder of Mercurie, and other things, amongst which is Alome burnt and powdered, which is excellent in these kind of wounds whether by its selfe or mixed with others. You shall use these and such like, even unto the perfect agglutination and cicatrization of the wound, and you may of your selfe devise other things, such as these, as occasion shall offer its selfe.

CHAP. XXIII.

What just occasion moved the Author to devise this new forme of remedy, to stanch the blood after the amputation of a member, and to forsake the common way used almost by all Chirurgions, which is, by application of actual cauteries.

Hot Irons not to be used.

Verily I confesse, I formerly have used to stanch the bleeding of members after amputation, after another manner than that I have a little before mentioned. Whereof I am ashamed, and agreived; But what should I doe? I had observed my maisters whose method I intended to follow, alwaies to doe the like; who thought themselves singularly well appointed to stanch a flux of blood, when they were furnished with various store of Hot Irons and causticke medicines, which they would use to the dismembred part, now one, then another, as they themselves thought meete. Which thing cannot be spoken, or but thought upon without great horror, much lesse acted. For this kinde of remedy could not but bring great and tormenting paine to the patient, seeing such fresh wounds made in the quicke and sound flesh are endewed with exquisite sence. Neither can any causticke be applyed to nervous bodies, but that this horrid impression of the fire will be presently communicated to the inward parts, whence horrid symptomes ensue, and oft times death it selfe. And verily of such as were burnt, the third part scarce ever recovered, and that with much adoe, for that combust wounds difficultly come to cicatrization; for by this burning are caused cruell paines, whence a Fever, Convulsion, and oft times other accidents worse than these. Adde hereunto, that when the eschar fell away, oft times a new hæmorrhagye ensued, for stanching whereof they were forced to use other causticke and burning Instruments. Neither did these good men know any other course; so by this repetition there was great losse and waste made of the fleshy and nervous substance of the part. Through which occasion the bones were laid bare, whence many were out of hope of cicatrization, being forced for the remainder of their wretched life to carry about an ulcer upon that part which was dismembred; which also tooke away the oportunitie of fitting or putting too of an artificiall legge or arme in stead of that which was taken off.

Wherefore I must earnestly entreate all Chirurgions, that leaving this old, and too too cruell way of healing, they would embrace this new, which I thinke was taught

taught mee by the speciall favour of the sacred Deitie; for I learnt it not of my mai-
sters, nor of any other, neither have I at any time found it used by any. Onely I
have read in *Galen*, that there was no speedier remedy for stanching of blood, than Lib. 5. Meth.
to bind the vessels through which it flowed towards their rootes, to wit, the Liver
and Heart.

This precept of *Galen*, of binding and sowing the Veines and Arteries in the new
wounds, when as I thought it might be drawne to these which are made by the am-
putation of members, I attempted it in many; yet so that at first in my budding
practise thereof, I alwayes had my cauteries and hot Irons in a readinesse, that if any
thing happened otherwise then I expected in this my new worke, I might fetch suc-
cour from the ancient practise, untill at length confirmed by the happy experience
of almost an infinite number of particulars, I bid eternally adieu, to all hot Irons and
cauteries which were commonly used in this worke. And I thinke it fit that Chi-
rurgions doe the like. For antiquity and custome in such things as are performed
by Art, ought not to have any sway, authority or place contrary to reason, as they
oft times have in civill affaires; wherefore let no man say unto us, that the Ancients
have alway done thus.

CHAP. XXV.

*The practice of the former precepts is declared, together with a memorable
history of a certaine soldier, whose arme was taken
off at the Elbow.*

Thinke it fit to confirme by an example the prescribed method of cu-
ring a Gangrene and Mortification. Whilest I was Chirurgion to the
Marshall of *Montejan* at *Turin*, a certaine common souldier received a
wound on his wrett with a musket bullet, by which the bones and ten-
dons being much broken, and the nervous bodyes cruelly torne, there followed a
Gangrene, & at length a mortification even to the Elbow; besides also an inflammati-
on seized upon the middle part of his Chest, and there was as it were a certaine dis-
position to a Gangrene, whereby it followed that he was painefully and dange-
rously troubled with belchings, hickettings, watchings, unquietnesse and frequent
sfoundings, which occasioned many Chirurgions to leave him as desperate. But it so
it fell out, that I orecome by his friends intreaty, undertooke the cure of this
wretched person, destitute of all humane helpe. Wherefore knowing the mortifi-
cation by its signes, I cut off the arme by the elbow as speedily as I could, making first
the ligature, where of I made mention; I say I tooke it off not with a saw, but onely
with an incision knife, cutting in sunder the ligaments which held the bones toge-
ther, because the sphacell was not passed the joynt of the Elbow. Neither ought
this section to be accounted strange, which is made in a joynt; for *Hippocrates*
much commends it, and saith that it is easily healed, and that there is nothing to be
feared therein besides sfoundings, by reason of the paine caused by cutting the com-
montendons and ligaments. But such incision being made, the former Ligature
could not hinder, but much blood must flow from thence, by reason of the large
vessels that run that way. Wherefore I let the blood to flow plentifully so to dis-
burden the part, and so afterwards to free it from the danger and feare of inflam-
mation and a Gangrene; then presently I stanchd the blood with an hot Iron, for as
yet I knew no other course. Then gently loosng the Ligature I scarifie that part
of the brawn of the Arme which was Gangreenated, with many and deepe incisions,
flanning and not touching the inner part, by reason of the multitude of the large
vessels and Nerves which runne that way; then I presently applyed a cautery to
some of the incisions, both to stanch the bleeding, and draw forth the virulent sanies
which

A History:

Dismembring
at a joynt.Sec. 4. lib.
de Art.

which remained in the part. And then I assailed and overcame the spreading putrefaction by putting and applying the formerly prescribed medicines; I used all sorts of restrictive medicines, to stay the inflammation of the Chest; I also applied Epithema's to the region of the heart, and gave him cordiall potions and boles, neither did I desist from using them untill such time as his belching, hicketing and swoonings had left him. Whilst I more attentively intended these things, another mischeife assailes my patient, to wit, Convulsions, and that not through any fault of him or me, but by the naughtinesse of the place wherein hee lay, which was in a Barne every where full of chinkes and open on every side, and then also it was in the midst of winter raging with frost and snaw and all sorts of cold; neyther had he any fire or other thing necessary for preservation of life, to lessen these injuries of the Aire and place; Now his joints were contracted, his teeth set, and his mouth and face were drawne awry, when as I pitying his case made him to bee carried into the neighbouring Stable which smoaked with much horse dung, and bringing in fire in two chafendishes, I presently annointed his necke and all the spine of his backe, shunning the parts of the Chest, with liniments formerly described for convulsions; then straight way I wrapped him in a warme linnen cloth, and buried him even to the necke in hot dung, putting a little fresh straw about him; when hee had stayed there some three dayes, having at length a gentle scowring or flux of his belly, and plentifull sweate, hee begun by little and little to open his mouth and teeth which before were set and close shut. Having got by this meanes some opportunitie better to doe my businesse, I opened his mouth as much as I pleased, by putting this following Instrument betweene his Teeth.

Burying in
hot horse dung
helpes Convulsions,

A Dilater made for to open the mouth and Teeth by the meanes of a screw in the end thereof.



Now drawing out the Instrument I kept his mouth open by putting in a willow sticke on each side thereof, that so I might the more easily feede him with meats soone made, as with Cowes milke and reare egges, untill hee had recovered power to eat, the convulsion having left him. Hee by this meanes freed from the Convulsion, I then againe begun the cure of his arme, and with an actuall cauterie seare the end of the bone, so to dry up the perpetuall afflux of corrupt matter.

It is not altogether unworthy of your knowledge, that hee said, how that hee was wondrously delighted by the application of such actuall cauteries, a certaine tickling running the whole length of the arme by reason of the gentle diffusion of the heate by applying the causticke; which same thing I have observed in many others; especially in such as lay upon the like occasion in the Hospitall of Paris. After this cauterizing there fell away many and large scalles of the bone, the freer appulse of the aire than was fit making much thereto; besides when

when there was place for fomentation, with the decoction of red Rose leaves, Wormewood, Sage, Bay leaves, flowers of Chamomile, Melilote, Dill; I so comforted the part that I also at the same time by the same meanes drew and tooke away the virulent *Sanies*, which firmly adhered to the flesh and bones.

A fomentation for a Convulsion.

Lastly, it came to passe, that by Gods assistance, these meanes I used, and my carefull diligence, he at length recovered. Wherefore I would admonish the young Chirurgion, that hee never account any so desperate, as to give him for lost, content to have let him goe with prognosticks; for as an ancient Doctor writes; That as in Nature, so in diseases there are also Monsters.

Monsters or miracles in diseases.

The end of the Twelfth Booke.



OF VLCERS, FISTVLAS, AND Hæmorrhoides.

THE THIRTEENTH BOOKE.

CHAP. I.

Of the nature, causes, and differences of Vlcers.

The diverse
acceptiōs of
an Vlcer.

*Sent. 34. sect.
3. lib. de fract.*



Sect. 1. preg.

What an Vlc-
er properly is.

*Lib. de constit.
Ariscap. 6.
The internall
causes.*

The externall
causes.

Aving already handled and treated of the nature, differences, causes, signes and cure of fresh and blood wounds, reason & order seeme to require that we now speake of Vlcers; taking our beginning from the ambiguity of the name. For according to *Hippocrates*, the name of Vlcer most generally taken may signifie all or any solution of Continuity; In which sense it is read, that all paine is an Vlcer. Generally, for a wound and Vlcer properly so called; as appeares by his Booke, *de Vlceribus*. Properly, as when hee saith, it is a signe of death when an Vlcer is dried up through an *Atrophia*, or defect of nourishment. Wee have here determined to speake of an Vlcer in this last and proper signification. And according thereto wee define an Vlcer to bee the solution of Continuity in a soft part, and that not bloody, but sordide and unpure, flowing with quitture, *Sanies* or any such like corruption, associated with one or more affects against nature, which hinder the healing and agglutination thereof; or that we may give you it in fewer words according to *Galens* opinion; An ulcer is a solution of Continuity, caused by Erosion. The causes of Vlcers are either internall or externall. The internall are through the default of humors peccant in quality rather than in quantity, or else in both, and so making erosion in the skinn and softer parts by their acrimonie and malignitie; Now these things happen eyther by naughty and irregular diet, or by the ill disposition of the entrailes, sending forth and emptying into the habite of the body this their ill disposure. The externall causes are, the excesse of cold seazing upon any part, especially more remote from the fountaine of heate, whence followes paine, whereunto succeeds an attraction of humors and spirits into the part, and the corruption of these so drawne thither by reason of the debility or extinction of the native heate in that part, whence lastly ulceration proceeds. In this number of externall causes may be ranged, a stroake, contusion, the application of sharpe and acrid medicines, as causticks, burnes; as also impure contagion, as appeares by the virulent vlcers acquired by the filthy copulation or too familiar conversation of such as have the French disease. How many and what the differences of Vlcers are, you may see here described in this following Scheme.

A Table of the differences of Vlcers.

An Vlcer is an impure solution of continuity in a soft part, flowing with filth and matter or other corruption, whereof there are two chiefe differences, for one

Is simple and solitary without complication of any other affect against nature and this varies in differences, either

Proper which are usually drawne from three things, to wit

figur, whence one Vlcer is called

Round or circular.
Sinuous, and variously spread.
Right or oblique.
Cornered, as triangular

Quantity, & that either according to their

Length; whence an Vlcer is long, short, indifferant.
Breadth; whence an Vlcer is broad, narrow indifferant.
Profundity; whence an Vlcer is deepe, superficially, indifferant.

Equalitie or inequality, which consists,

In those differences of dimensions whereof we last treated, I say in length, breadth and profundity, wherein they are either alike or of the same manner, or else unlike and so of a different manner.

Or common and accidental, & these drawne, either

From their time; whence an Vlcer is termed new, old, of short or long cure and duration.

From their appearance; whence one is called an apparent Vlcer; another a hidden and occult Vlcer.

From their manner of generation; as if it be made by a heavy, bruising, cutting, pricking or corroding thing; whence a cut, torne and mixt Vlcer.

From their site; whence an Vlcer before, behind, above, below, in the head, taile, or belly of a Musclic.

From that part it seizes upon, whence an vlcer in the flesh and skin, or feeding upon the gristles or bones, such as these of the nose, the palate of the mouth, and eares.

From other common accidents; whence a Telephian Vlcer; that is, such an Vlcer as Telephus had. A Chironian, which needs the hand and art of Chiron. A Canckrous which resembles a Cancer.

With the cause, whence an Vlcer

Is Cachoymicke, Catarrhoicke or venenate, that is, with a Cachochymia or Repletion of ill humors, a Catarrhe, or poison cherishes or feeds.

Is compound and many and various wayes complicated, as

with the disease, as from

Distemper, whether simple or compound, whence an Vlcer is,

Hot.
Cold.
Dry.
Moist.
Mixt.

Smelling or Tumor, whence a

Phlegmonous,
Erysipelous,
Oedematous.
Scirrhus,
Cancrous } Vlcers.

Solution of continuities, or any other discommodities, whence a rough, callous, fistulous, cavernous, sinuous Vlcer, with luxation, fracture, &c.

With the Symptome, whence, A corroding, eating, painefull, sordid and virulent Vlcer.

With the cause and disease,

With the cause and Symptome,

With the disease and Symptome,

With the cause, disease and Symptome.

Examples whereof may be taken from that we have formerly delivered.

CHAP.

CHAP. II.

Of the signes of Vlcers.

The signes of
a putrid Vlcer.



Here are various signes of Vlcers according to their differences. For it is the signe of a putrid Vlcer, if it exhale a noysome, grievous, stinking and carion-like vapour, together with filthy matter. An eating Vlcer is knowne by the eating in, hollownesse and wearing away of the part wherein it resides, together with the adjoyning parts. A fardide Vlcer may be knowne by the grossnesse and visciduity of the excrements it sends forth, and by the loose and spongy softnesse, or the cruisted inequality of the flesh which growes over it. A cavernous Vlcer, by the streightnesse of the orifice, and largenesse and deepenesse of the windings within. A fistulous Vlcer, if to the last mentioned signes there accrew a callous hardnesse of the lips or sides of the Vlcer. A cancrus Vlcer is horrible to behold with the lips turned backe, hard and swollne, flowing with virulent and stinking corruption, and sometimes also with bloody matter, together with the swelling and lifting up of the adjacent veines. An untemperate, or as they terme it, a distempered Vlcer, is such as is nourished by some great distemper whether hot or cold, moist or dry, or compounded of these. An ill* natured or malignant Vlcer is knowne by the difficulty of curing and rebellious contumacy to remedies appointed according to art and reason. Wee know a catarrhus Vlcer, if the matter which feeds it flow to it from some *varices* thereunto adjoyning, or dilated, swollne and broken veines, or from some entrails, or from the whole body being ill affected. An Apostumatous Vlcer is perceived by the presence of any tumor against nature, whose kind may be found out by sight and handling. *Telephian* Vlcers, are such as affected *Telephus*, and *Chironian* (in whose cure *Chiron* excelled) are Vlcers which may be knowne by their magnitude not much putrid, and consequently not sending forth any ill smell, not eating, not tormenting with paine, but having their lips swollne and hard, and therefore ill to bee healed. For although they may bee sometimes cicatrized, yet it being but slender may easily bee broken, and the Vlcer renewed. They are almost like an ulcerated *Cancer*, but that they are accompanied with swelling in the adjacent parts; they are also worse than these which are termed *Cacoethe*, that is, ill natured or malignant; whence it is that *Fernelius* thought they had a hidden cause of malignitie, besides the common default of the humour, and that such as can scarce bee driven away; such commonly are left after the plague. Wherefore *Galen* thinks such to bee malignant as will not suppurate or yeeld any quittance.

Gal. cap. 7. lib. 4. Meth.
* *Vlcus cacoethe.*

Com. ad Aphor. 22. sect. 5.

CHAP. III.

Of the prognosticks of Vlcers.

Aph. 45. sect. 6.



He bone must necessarily scall, and hollow scarres be left by malignant Vlcers of a yeares continuance or longer, and rebellious to medicines fitly applied. The bone must scall by reason of the continuall afflux, and wearing by the acrimony of the humour, which looses the compostructure and glue by which the parts thereof are joyned together. But the scars must become hollow, for that the bone (whence all the flesh takes its first originall) or some portion thereof, being taken from under the flesh, as the foundation thereof, so much of the bulcke of the flesh must necessarily sinke downe, as the magnitude of the portion of the wasted bone comes unto.

Hip. progn. lib. 1. cap. 8.
Aph. 65. sect. 5.

You may know that death is at hand, when the Vlcers that arise in or before diseases, are suddenly either livid or dried, or pale and withered. For such driness sheweth the defect of nature, which is not able to send the familiar and accustomed nutriment to the part ulcerated. But the livid or pale colour is not onely an argu-
ment

ment of the overabundance of choler and melancholy, but also of the extinction of the native heate. In Vlcers where tumors appeare, the patients suffer no convulsions, neither are franticke; for the tumor being in the habite of the body possessed with an Vlcer, argues that the nervous parts and their originall are free from the noxious humors. But these tumors suddenly vanishing and without manifest cause, as without application of a discussing medicine, or bleeding, those who have them on their backs have convulsions and distensions, for that the spine of the backe is almost wholly nervous; but such as have them on their fore parts, become eyther franticke, or have a sharpe paine of their side, or pleurisie, or else a dysentery if the tumors be reddish; for the forepart of the body is replenished and overspread with many and large vessells, into whose passages the morbidicke matter being translated, is presently carried to these parts which are the seats of such diseases.

Soft and loose tumors in Vlcers are good, for they shew a mildnesse and gentleness of the humors, but crude and hard swellings are naught; for all digestion in some measure resembles elixation. Vlcers which are smooth and shining are ill, for they shew that there resides an humour maligne by its acrimony, which frets asunder the roots of the haire, and depraves the naturall construction of the pores of the skin; whence it is that such as are troubled with Quartaine agues, the Leprosie or *Lues venerea*, have their haire fall off.

Aph. 67. sect. 5.

Aph. 4. sect. 6.

A livid flesh is ill in Vlcers which cause a rottennesse or corruption of the bones lying under the flesh; for it is an argument of the dying heate and corruption of the bone, whence the flesh hath its originall and integrity.

These Vlcers which happen by occasion of any disease, as a Dropsy, are hard to be cured; as also those whereinto a *varix* or swollne vessell continually casts in matter, which a present distemper foment; which have swollne, hard and callous lips; and such as are circular or round. An *Hyperfarcosis*, or fleshy excrescence usually happens to Vlcers not diligently mundified; and if they possesse the armes or Legs they cause a Phlegmon or some other tumor in the groines, chiefly if the body bee full of ill humors, as *Avicen* hath noted. For these parts by reason of their rarity and weakenesse are fit and subject to defluxions. *Albucrasis* writes that for nine causes Vlcers are difficultly replenished with flesh and cicatrized. The first for want of blood, in a bloodlesse body; the second by reason of ill humors and the impurity of the blood; the third by the unfit application of inconvenient medicines; the fourth by reason of the fordidnesse of the Vlcer; the fifth by the putrification of the soft and carionlike flesh encompassing the Vlcer; the sixth when they take their originall from a common cause which every where rages with fury, such as are those which are left by the pestilence; the seaventh by reason of the callous hardnesse of the lips of the Vlcer. The eighth when the heavens and aire are of such condition as ministers fuell to the continuance of the Vlcer, as at Saragoza in Aragon; the ninth when the bones which lye under it are wasted by rottennesse.

Hip. lib. de ulc. Gal. cap. 2. 830 5. lib. Meth. 4.

For what causes Vlcers are hard to beale.

An Vlcer that casts forth white, smooth, equall quitture, and little or no stinking, is easily healed; for it argues the victory of the native heate, and the integrity of the solid parts. We terme that smooth quitture which is absolutely concocted, neither yeelds any asperity to the touch, whereby we might suspect that as yet any portion of the humor remaines crude; we call that equall wherein you can note no diversity of parts; and white not that which is perfectly so, but that which is of an ash colour, as *Galen* observes. But it is ill, if when the cure is indifferently forward, a fluxe of blood suddainly breake forth in those Vlcers which beate strongly by reason of the great inflammation adjoynd therewith. For as *Hippocrates* observes, an effusion of blood happening upon a strong pulsation in Vlcers is evill; for the blood breaking out of an Artery cannot be stayed but by force; and also this blood is so furious by reason of the heate and inflammation the nourishers of this Vlcer, that it breakes its receptacles, and hence ensues the extinction of the native heate, whence the defect of suppuration and a Gangrene ensues. Now for that there flowes two sorts of excrements from malignant Vlcers, the more thinne is tearmed *Ichor* or *saniès*, but the more grosse is named *sordes*; that is virulent and flowes from pricked nerves, and the *Periostia* when they are evill affected; but the other usually flowes from the

What pus or matter is smooth, equall and white.

Ad feulent. 3 2. sect. 2. de fract.

Aph. 21. sect. 7.

Two sorts of excrements flow from a malignant Vlcers.

Vlcers of the joynts, and it is the worser if it be blacke, reddish, ash-coloured, if muddy or unæquall like wine Lees, if it stinke. *Sanies* is like the water wherein flesh hath beene washed; it argues the preternaturall heate of the part, but when it is pale coloured, it is said to shew the extinction of the heate.

CHAP. IIII.

Of the generall cure of Vlcers.

The curing of
a simple Vlc
consists in ex-
siccation.

Gal. 7. Meth.
cap. 12.

Gal Lib. 4.
de comp. med.
secund. gen.

IN Vlcer is eyther simple or compound. A simple Vlcer, as an Vlcer hath one and that a simple indication, that is, exsiccation; and that more than in a wound, by how much an Vlcer is moister than a wound. There are many indications proposed for the cure of a compound Vlcer, in respect of w^{ch} *Galen* would have us to keepe this order, that wee have the first regard of the most urgent, then of the cause, then of that, which unlesse it be taken away, the Vlcer cannot be healed. By giving you an example you may easily understand the meaning hereof. Imagine on the inside of the Leg a little above the ancle, an Vlcer very painefull, hollow, putride, associated with the rottennesse of the bone, circular, having hard and swolne Lips, and engirt with the inflammation and *varices* of the neighbouring parts. If you take this to cure before you doe any thing about the Vlcer, unlesse you bee called upon by that which urges, as by vehemency of paine, you must first use generall meanes by calling and advising with a Physition; For in *Galens* opinion, if the whole body require a preparation, then must that be done in the first place; for in some Vlcers purgation onely will bee sufficient; in some bloodletting; others are better by using both meanes, which is as the cause of the Vlcer proceedes from a repletion or illnesse of humors. Now by these meanes having taken away the cause of the Vlcer, you must come to the particular cure thereof, beginning with that which is most urgent. Wherefore you must first assuage the paine by application of things contrary to the cause thereof, as if it proceede from a Phlegmonous distemper, which hath long possest, distended and hardened the part, it must bee eased by evacuation. First, bathing it with warme water, to mollifie and relaxe the skinne, that so you may the more easily evacuate the contained humors; then shall you draw away portion of the matter causing the swelling and paine by scarification, if the patient shall be of sufficient courage, or else by application of hose-leaches if hee be more faint hearted; and then you shall temper the heate there of by applying *Vnguentum refrigerans Galeni*.

To conclude, you shall attempt all things which wee have formerly delivered (in our treatise of Tumors) to take away the swelling thereof. When you have brought this to that passe you desire, you shall come to those which are such, that it cannot be taken away or healed without them, which shall be done by orderly helping the defects against nature which were conjoynd with the Vlcer, to wit, the rottennesse of the bone, which you shall helpe by actuall cauterics; and in the meane while you shall draw the Vlcer into another forme, to wit, cornered, and you shall cut away the callous hardnesse, and helpe the rottennesse. Then must you procure the falling away of the Eschar, and then provide for the scailing of the bone by the meanes formerly prescribed, lastly the mundified Vlcer must be filled with flesh.

The things
conducing to
the generating
of flesh.

For generating of flesh two causes must concurre, the efficient and materiall; The efficient is, the good temper both of the whole body, as also of the Vlcerrated part. For this prevailing, there will be an attraction, digestion, apposition and assimilation of the laudible juice to the part affected; verily the laudible temper is preserved by like things, but the vicious is amended by contraries. The matter to bee spent upon flesh, is laudible blood, which offends neither in quality, nor quantity. In this regeneration of the flesh there appeare two kinds of excrements, the one more thinne and humide called *Sanies*, the other more grosse termed *Sordes*. Both of these for that they are contrary to nature, doe therefore hinder the regeneration of flesh, and therefore must be taken away by applying their contraryes, as by things drying

drying in the first degree, and more strongly or weakly detergent according to the complexion of the part and the whole body, and the plenty and quality of the excrementitious humor, and the uncleanness of the Vlcer. For the part must be preserved by the use of the like, but the ulcer overcome by application of things contrary thereto. After that by natures endeavour and the Chirurgions helpe the Vlcer is replete with flesh, it must be cicatrized, that is, covered with a callous skin in stead of the true and native skin. It may be cicatrized by strewing of very drying pouders having very little or no acrimony. Thus Alume and vitrioll being burnt and made into powder, and thinly strewed upon the part doe quickly cicatrize the former fleshy worke. To this purpose also serve, the roote of *Aristolochia*, Aloes, burnt Lead, Pomegranat pills burnt, Litharge, *Tutia*, and also plates of Lead besmeared with quicksilver, whose efficacy for this purpose Chirurgions sometimes finde more certaine and powerfull than any other remedies.

What a Scarre is.

Things causing cicatrization.

CHAP. V. Of a distempered Vlcer.

BEfore we speake of a distempered Vlcer, it is meete, least that the Chirur-
gion take one distemper for another, briefly to relate the signes of each. You may know that an Vlcer is associated with a dry distemper by your sight, as if the Vlcer be as it were wrinckled, if it send forth little or no moisture; also it is knowne by touch, if it feele rough and hard. You shall correct this distemper by humecting medicines, as fomenting it with warme water according to *Galen's* opinion, or else with *Hydrasum* (i. e.) Oile and water mixt, but alwayes you must first purge, if the body shall abound with ill humors, or use Phlebotomie if the body be plethoricke; otherwise you shall draw more humors into the part than it can beare. Now you shall so long foment it, untill the flesh which is about it begin to looke red, was soft and moist, and the part it selfe be a little swollne. If you proceede further, you will resolve all the humor which you have drawne thither, and so your labour is in vaine. After the fomentation apply such a remedy to the ulcerated part.

R. cremoris hordei ʒij. fol. malva in aq. coct. ʒj. pingued. porci ʒss. mellis com. ʒss. misce in mortario & fiat unguentum.

Signes of a distempered Vlcer.

Remedies for a dry distempered Vlcer.

You shall know a moist distemper associates the Vlcer by the plenty of the excrementitious humor, which the Vlcer sends forth; by the spongie and fungous softnesse and growth of the flesh about it. You shall amend this by drying remedies, such as these are, which we terme sarcoticks, having alwayes regard to the plenty of the humour, the proper temper of the part, and other indications formerly mentioned. Amongst other remedies *Galen* much commends Alume water, for it dries, clenches and corroborates the affected part. Also this ensuing fomentation may be applied to good purpose. *ʒ. rosar. rub. absinth. beton. tapsi barbat. an. m. j. gallarum, nucum cupressi, an. ʒij. aluminis rocha ʒj. fiat decoctio in vino austero, instituatur fons;* Then let *Empl. de cerussa* or *De minio* be applyed to the Vlcer. Also I have found by experience that the powder of burnt alome lightly strewed upon the Vlcer is very effectuell in this case. You shall know that an hot distemper associates the Vlcer by rednesse, or yellownesse thereof, by the heate manifest to your touch, and the propriety of the paine. Then must you have recourse to refrigerating things, such a *ung. Rosatum M. f. Refrigerans Gal. Populeon*; stoopes and cloathed dipped in plantaine water, Night shade water, or Oxycrate. I have oft found by experience that scarification, or Leaches being applyed, did more conduce than any other remedy. For so the chafed blood, which by that meanes is apt to corrupt, is drawne away, and the part its selfe is also freed of that burden.

Signes of too moist an Vlcer.

Gal. lib. 1. simp. cap 7.

Signes of a hot distempered Vlcer.

We know a cold distemper by the whitish or pale colour, by the touch of the Chirur-
gion, and speech of the patient complaining of the coldnesse of the ulcerated part. You shall correct this by applying and putting bottles filled with water about the part, or else Swines bladders halfe filled with the following decoction.

Signes of a cold distempered Vlcer.

ʒ. origani, pulegy, chamam. melilori, an. m. j. absinth. majorana, salvia, rorismar. an. m. ss. fiat

fiat decoctio in vino generoso, addendo aqua vite quod sufficit. Also the Vlcer may conveniently be fomented with sponges dipped in the same decoction, and let there be applied thereto *Empl. Oxycroceum; emp. de meliloto; de Vigo cum mercurio, and sine mercurio.* But if a mixt and compound distemper be joynd to the Vlcer, the medicines must in like manner be mixt & composd. The residue of the Chirurgical care and paines must be spent upon the proper and peculiar cure of the Vlcer, as it is an Vlcer; which we said in the former Chapter was contained in deterfion, regenerating flesh and cicatrization thereof.

CHAP. VI.

Of an Vlcer with paine.

The matter
of Narcoticke
cataplasmes.

Catheracticks
have power to
assuage paine.

Here oft times so great paine accompanieth Vlcers, that it calls thereto the counsell of the Physician. Wherefore if it proceede from any distemper, it shall be taken away by remedies proper against that distemper, such as we mentioned in the former Chapter. But if it doe not so cease, wee must goe on to Narcoticks. Such are cataplasmes of the leaves of Mandrakes, water lillies, Henbane, Nightshade, Hemlocke, the seeds of Poppy and Oyles of the same; to which also may be added *Opium, Populeon*, and other things of like faculties. But if a malignant acrimonie and virulency of an humour corroding and eating the flesh lying under it and the lips about it, cause and make the paine, you shall neither assuage it by anodynes, nor Narcoticks; for by application of gentle medicines it wil become worse and worse. Wherefore you must betake you to Cathæreticks; For strong medicines are fittest for strong diseases. Wherefore let a pledget dipped in strong and more than ordinarily powerfull *Aegyptiacum*, or in a little oyle of Vitrioll, be applyed to the Vlcer; for these have power to tame this raging paine, and virulent humors. In the meane season let refrigerating things be put about the Vlcer, least the vehemency of acrid medicines cause a defluxion.

CHAP. VII.

Of Vlcers with overgrowing or proudnesse of flesh.

Things wash-
ing super-
fluous flesh.

Lib. 3. Meth.
cap. 6.

Vlcers.



Vlcers have oft times proud or overgrowing flesh in them, either by the negligence of the Chirurgion, or fault of the patient. Against this, drying and gently eating or consuming medicines must be applyed; such as are Galls, *cortex thuris*, Aloes, *Tutia*, Antimony, *Pompholix*, Vitrioll, Lead, all of them burnt and washt if neede require. Of these powders you may also make ointments with a little oyle and waxe; but if the proud flesh, as that which is hard and dense yecld not to these remedies, we must come to causticks, or else to iron, so to cut it off. For in *Galens* opinion, the taking away of proud flesh is no worke of nature, (as the generating, restoring and agglutinating of the flesh is) but it is performed by medicines which dry vehemently, or else by the hand of the Chirurgion; wherefore amongst the remedies fit for this operation, the powder of mercury with some small quantity of burnt Alum, or burnt Vitrioll alone, seeme very effectual to me. Now for the hard and callous lips of the Vlcer, they must be mollified with medicines which have such a faculty, as with Calves, Goose, Capons or Ducks grease, the oiles of Lillies, sweet Almonds, Wormes, Whelpes, *Oesipus*, the mucilages of Marsh-mallows, Linefeede, fanugreeke feede, Gum *Ammoniacum*, *Galbanum*, *Bdellium*, of which being mixed may be made Emplaisters, unguents, and liniments, or you shall use *Emp. Diachylon*, or *de Mucaginibus*, *De Vigo cum mercurio*. To conclude, after we have for some few dayes used such like remedies, you may apply to the Vlcer a plate of Lead rubbed over with Quicksilver; for this is very effectual to smooth an Vlcer and depresse the lips; if you shall prevaile nothing by this meanes, you must come to the causticks, by which if you still prevaile nothing, for that the lips of the Vlcer are so callous that the caustickes cannot perce into them, you must cleave them with a gentle scarification, or else cut them to the quicke, so to make way,

or

or as it were open a window for the medicine to enter in, according to *Galen*. Neither in the interim must you omit *Hippocrates* his advice, which is, that by the same operation we reduce the ulcer if round, into another figure, to wit, long or triangular. Lib 4. Meth, cap. 2.

CHAP. VIII.

Of an Ulcer putride and breeding wormes.



Ormes are divers times bred in ulcers, whence they are called wormie ulcers; the cause hereof is the too great excrementitious humidity prepared to putrefie by unnaturall and immoderate heate. Which happens, either for that the ulcer is neglected, or else by reason of the distemper and depraved humors of all the body, or the affected part; or else for that the excrementitious humor collected in the ulcer, hath not open and free passage forth; as it happens to the ulcers of the eares, nose, fundament, necke of the wombe, and lastly to all sinuous and cuniculous ulcers. Yet it doth not necessarily follow that ali putrid ulcers must have wormes in them; as you may perceiue by the definition of a putride ulcer which we gave you before. For the cure of such ulcers after generall meanes, the wormes must first be taken forth, then the excrementitious humor must be drawne away, whence they take their originall. Therefore you shall foment the ulcer with the ensuing decoction, which is of force to kill them; for if any labour to take forth all that are quicke he will be much deceived; for they oft times doe so tenaciously adhere to the ulcerated part, that you cannot plucke them away without much force and paine.

The cause of wormes breed in Vlcers.

R. absinth. centaur. majoris, marrubij, an. M. j. fiat decoctio ad lb. ss. in qua dissolve aloes ꝑb. unguenti aegyptiaci ꝑj. Let the ulcer be fomented and washed with this medicine, and let pledgets dipped herein be put into the ulcer; or else if the ulcer be cuniculous or full of windings, make injection therewith which may goe into all parts thereof.

A fomentation to kill the wormes.

Archigenes much commendeth this following medicine. *R. Cerusa, polij montani, an. ꝑb. picis navalis liquida quantum sufficit, misce in mortario pro linimento.* If the putrefaction be such that these medicines will not suffice for the amendment thereof, you must come to more powerfull, or to cauteries also, or hot Irons, or to section; yet you must still beginne with the more gentle, such as this of *Galen*'s description.

Gal. 4. comp. med.

R. cera. ꝑj. cerusa ꝑj. olei ros. ꝑj. salis ammon. ꝑb squam. aris ꝑij. thur. alum. arag. malicer. calcis viva, an. ꝑj. fiat emplastrum. Or *R. terebinth. lota ꝑj. cera alba ꝑb liquefiant simul addendo sublimati, ꝑb. salis torrefacti, & vitrioli calcinati, an. ꝑj. fiat mundificatorium.* Or you must use our *Aegyptiacum* alone, which hath Sublimate entring into the composition thereof; but in the interim the circuit of the Ulcer must be defended with refrigerating, and defensative things for feare of paine.

CHAP. IX.

Of a sordide Vlcer.



Sordide Vlcer after the cure of the body in generall, shall be healed with detergent medicines; the indication being drawne from the grosse and tough excrement, which with the excrementitious *Sanies*, as it were besieging, and blocking up the ulcerated parts, weakens and as it were dulls the force of medicines though powerfull, which causeth us to beginne the cure with fomentations and lotions as thus.

R. Lixivij com. lb. j. absinth. marrub. appj. centaur. utriusque, hypericonis, an. M. ss. coquantur, colatura, qua sufficiat, adde mellis rosati ꝑj. unguenti aegyptiaci ꝑb. fiat lotio. Then use the following deterfive medicine: *R. succi appj. & plantag. an. ꝑj. mellis com. ꝑj. terebinth. ꝑb. pul. areos Florent. & aloes, an. ꝑb. fiat medicamentum.*

A detergent lotion.

The Chirurghion must wel consider, at how many dressings he shall be able to wash

Detergent medicines without acrimony.

A caution very observable in use of detergent things.

A distinction to be observed concerning the impurity of ulcers.

Diligent regard must be had of the patients bodies and the affected parts.

away the grosse *sordes* or filth sticking close to the Vlcer, and dry up the excrementitious *sanies*. For oft times these things may be done at one dressing; but in others who have more quicke sense or feeling, not so soone. But when the Vlcer is freed of such grosse *Sordes* or filth, you must forbear to use more acride things for feare of paine, defluxion, inflammation, and erosion, whereby the Vlcer would become more hollow. Wherefore then we shall bee content to apply remedies which dry and cleanse without acrimony, that wee may so helpe natures endeavours in generating flesh. Such remedies are the pouders of Aloes, Mastich, Myrrhe, Orris, Litharge, Antimony, roots of Gentian, Barly flower, and the like, which being strewed upon the Vlcer, you shall cover it with Lint, and put over that a plate of Lead, rubbed over with quicksilver; and you shall put on these deterfives and desiccatives more or lesse strong, as you shall finde it requisite and necessary. For the too plentiful use of drying and deterfiv things, doth in time hollow the Vlcers, whereby it comes to passe that in short time in like sort, a greater quantity of *Sanies* flowes from the Vlcer, the proper substance of the flesh being dissolved by the force or acrimony of the deterfiv medicine; as also the proper alimentary humor, which flowed to the part, being in like sort, a greater quantity of *Sanies* flowed from the Vlcer, the proper substance of the flesh being dissolved by the force or acrimony of the deterfiv medicine, as also the proper alimentary humor, which flowed to the part, being in like sort defiled: which thing beguiles the unskilfull Chirurgion. For by how much he sees the Vlcer flow more plentifully with *sanies*, he endeavours by so much the more to exhaust and dry up with more acrid medicines these humidities as if they were excrementitious; But *Galen* hath long agoe admonished us to take heede hercof, setting forth a History of a certaine Empericke who dressing a sordide Vlcer with a greene, acrid and eating medicine, dissolved the flesh, and so consequently made the Vlcer more hollow, and caused more paine and defluxion; whereby it happened that continually adding more acrid medicines, hee continually by his ignorance and unskilfulnesse increased the colliquation of the flesh, the largenesse of the ulcer and excrementitious humidity. Wherefore wee must take speciall care, whether the sordide Vlcer grow each day worse, by its proper fault and the impurity of the whole body besides, or else by the colliquation of the flesh and corruption of the benigne and alimentary humor sent thither for the nutrition of the part, by the too frequent and unskilfull use of too acrid a medicine. You may conjecture this by the increase of the paine without reason, and by the heate and rednesse of the lips of the Vlcer. Therefore you must principally have regard to this, that you give each of your patients his fit measure, that is, a convenient and agreeable medicine to each of their strengths, taking indication from the strength, distemper, and consistence of the whole body and affected part; for there is a great deale of difference whether you apply a medicine to a plowman or labourer, or to an Eunuch and woman, or whether to the Legge, or eyes. For these medicines which to a dense and hard body and part are onely detergent and drying, the same are to delicate and tender bodies and parts cathæreticke and eating, by colliquation of the flesh, and corruption of the nourishment, making an increase of *Sordes* or filth; on the contrary those things which doe laudibly and sufficiently cleanse the flesh in a soft body and dry up the *sanies*, these same things applied to a hard body increase the *sordes* and *sanies* by suffering them to breed, neither are they of sufficient power to wash away the tenacious impurity of a dense body. Wherefore the skilfull Chirurgion will see when he must betake himselfe from too strongly cleansing and eating medicines, to these which are more milde.

CHAP. X.

Of a virulent, eating & malignant Vlcer which is termed Cacoëthes, & of a Chironian Vlcer.

How virulent and eating ulcers differ.

Virulent and eating Vlcers differ not unlesse in *magis* and *minus*, for we tearme it a virulent Vlcer which sends forth a virulent *sanies*, which is properly called *Virus*. This *Virus*, or virulency, when it becomes more malignant, gnawes

gnawes and feeds upon the parts which lye under, and are adjoyning to the Vlcer, and makes an eating Vlcer. Such Vlcers are by *Galen* called *Dyssepulotica*, that is, difficultly to be cicatrized; for, saith he, it happens that the Vlcer is *Dyssepuloticke*, either for that the part affected may be vitiated either in the habit or temper thereof, so that it may corrupt the humor which flowes thither; such an Vlcer is by a particular name tearmed *Cacoethes*; or for that by reason of the evill quality of the blood flowing thither and eating the part, the part affected being too moist cannot heale up. He further addes that a Chironian Vlcer is farre more maligne than these Vlcers which are tearmed *Cacoethe*.

Gal. Lib. 4. de comp. med. sec. genera.

How a chironian ulcer differs from an eating, see before, Cap. 25

For the cure; by reason that all these Vlcers have a large extent, for some are more maligne and ill to be cicatrized than othersome; it is also necessary to have divers medicines ready and at hand distinct both in their faculties and the degrees thereof; so that it is no marvaile if they oft faile of their purpose, who with the same medicine dresse and thinke they shall heale all maligne Vlcers. This following medicine described by *Asclepiades* is much commended by *Galen*.

℞. squama aris, aruginis rase, an. ʒij. cera lb. ss. resine laricis. ʒjss. qua liquari possunt aridis affundantur, and make an emplaister to bee laid onely upon the Vlcer; for you must lay a defensative about the Vlcer for feare of inflammation. But *Galen* saith, that the following Epuloticke of *Primion* excells the rest, as that which to desperate Vlcers, (which many have taken in hand and left as incurable,) was of certaine and approved use.

Gal. lib. 4. sec. gen. Cap. 55

℞. sorcos ʒij. aluminis scissilis, calcis viue, an ʒij. thuris, gallarum, an. ʒiij. cera, lb. j. & ʒiij. seu vitulini lb. j. & ʒviij. olei veteris quantum sufficit, fiat emplastrum.

Gal. lib. 3. de comp. med. sec. gen. Cap. 65

CHAP. XI.

An advertisement to the young Chirurgion touching the distance of times wherein maligne Vlcers are to be dressed.



O shew the use of *Asclepiades* his medicine described in the former Chapter, and convince the error of these Chirurgions, who thinke they doe well for their patients, if they twise or thrice on a day dresse maligne Vlcers, I have beere thought good to digresse a little from my purpose and to interpolate *Galen's* authority. Rightly (saith *Galen*) hath *Asclepiades* added these words to the formerly described medicine: And loose this after three dayes, and foment the Vlcer, and fasten the same emplaister being washed, and apply it againe; for unlesse the medicine adhere long to the skin, it will doe no good. Which thing notwithstanding many Physicians have beene ignorant of, thinking if they wiped away the *Sanies* from the Vlcer thrice on a day, they should doe better than those who did the same but twice a day. But those who dresse it but once a day, are reprooved by the patients as negligent. But they are much mistaken; for you must remember, as we have delivered in most of our writings, that the qualities of all neighbouring bodies do mutuall actuate and affect each other in some degree, although the one thereof bee much more powerfull; for by this reason in space of time they become somewhat alike, though they otherwise differ much; But when the quality of the medicine shall bee like in *species* to the body to bee cured, there followes the better successe. Wherefore he which moved by these reasons first appointed to use the emplaister formerly applyed, is worthy of commendations; and we ought to follow him much the rather, seeing that which he found out by reason, is approved by experience. Neither did he unadvisedly command to foment the wound every third day, that is, at every dressing; for seeing it is a powerfull medicine, therefore it stands in neede of mitigation. Thus much *Galen*, whose opinion grounded on reason, he can againe confirme with another reason. It is already sufficiently knowne, that medicines can doe nothing in us unlesse by the force of the native heate, which stirres up the faculty of the medicine to operation. But in Vlcers which are absolutely maligne, the native heate of the affected part is very languid, being broken

Gal. lib. 4. de comp. med. sec. gen. Cap. 55

Galen's reason further explained,

broken and debilitated by the presence of the preternaturall heate; so that it stands in need of a great space of time to actuate the vertue and faculty of the medicine. Wherefore, if in that time, when as the native heate hath much moved and stirred up the faculty of the medicine, the ulcer be loosed or opened, and that emplaister cast away which was layd upon the part, and a fresh one layd in steede thereof, the heate implanted in the part is either dissipated by the contact of the ayre, or is weakned and driven in; and that endeavour which was made by the emplaister was to no purpose, being as it were stopped in the midst of the course. But a new emplaister being layd on, the heate of the part must undergoe a new labour, so to stirre up the faculty to bring it to act.

Medicines are
onely such in
faculty.

For all medicines are, what they are, in faculty. Equall to this is their error, who by too oft renewing their emplaisters on the same day, doe too powerfully clense; for so they doe not onely take away the excrementitious humors, both *Sordes* and *Sanies*, but also the alimentary juice; to wit, the *Rob*, *Cambium*, and *Gluten*, which are the next matter for procreating of laudible flesh. Wherefore it is not good to dreisse Vlcers so often in one day, and to loose them to apply new emplaisters, unlesse some grievous symptome (as paine) force us to doe it, which requires to be asswaged and mitigated by the often changing and renewing of Anodyne medicines.

CHAP. XII.

How to binde up Vlcers.

The beginnig
of your bind-
ing must be
at the Vlcere.



Hip. lib. de ale.

Revulsion into
contrary
parts.

Or the binding up of Vlcers, you must alwayes beginne your bandage at the Vlcere. Now the Rowler must be so large that it may not onely cover and comprehend the Vlcere, but also some portion of the adjacent parts above and below; and let it presse the Vlcere with that moderation, that it may only presse out the excrementitious humors. For so the ulcer wil become dry, and consequently more neere to healing, as it is observed by *Hippocrates*. Let this be the measure of your binding, that it be neither too strait for hence would ensue paine and defluxion; nor too laxe, for such is of no use. You may moysten your boulders and Rowlers in oxycrate or in red and astringent wine, especially in Summer; when you have bound it up the part must be kept quiet. For according to *Hippocrates*, those who have an ulcer in the legges, ought neither to stand, nor sit, but to lye on a bed. Wherefore when the legges are ulcerated the armes must be exercised, by handling, lifting up and casting downe of divers things. But on the contrary if the armes be ulcerated, the legges must be exercised with walking, or frictions from above downewards, if the patient cannot endure to walke. So the humors and spirits which with more violence and greater plenty runne downe to the part affected, may be drawne backe and diverted.

CHAP. XIII.

Of the cure of particular ulcers, and first of those of the eyes.

4. Methodi.



Or that (in *Galen's* opinion) the diverse indication in curing diseases is drawne from the condition of the part, to wit, the temper, complexion, site, figure, use, dull or quicke sense; Therefore having breecely handled the generall cure both of simple and compound and implicate ulcers, I thinke it fit to treat of them now as they are distinguished by the parts, beginning with these of the eyes. These according to *Celsus*, are sometimes caused by pustules, or a sharpe defluxion which frets or eates in sunder the coates thereof, or else by a stroake.

Lib. 6. cap. 6.
lib. 3.
Botryon.
Caloma.

Paulus sets downe these differences of the ulcers of the eyes; If (saith he) a small, little and hollow ulcer be upon the horny coate, it is by the Greekes termed *Botryon*; but if it be broader and lesse deepe, it is termed *Caloma*; about the circle of the *Iris* or

Raine-

Rainebow, it is called *Argemon*. If it be crusty and sordid, it is termed *Epicauma*. These in generall require the same cure as the former, that is, to bee mundified, incarnated, dried and cicatrized; but the part affected indicates more gentle medicines. Wherefore having purged the patient and taken some blood both from his arme, as also from his veines and temporall Arteries, and bathed him if it be needfull; to divert the defluxion you shall to his shoulders apply cupping glasses with scarification; or else bread newly drawne out of the oven, and sprinkled with *aqua vita* or some good wine shall be applyed to the originall of the spinall marrow. But you shall apply to the forehead and temples an astringent emplaister made of *emplastrum contra rupturam*, *arg. Comitise*, and *Resiccativum rubrum* mixed together. But this ensuing *Collyrium* described by *Celsus* and approved by *Hollerius*, shall be dropped into the eye. *R. aris usti, cadmia usta & lota, an. ʒj. ex aqua fingatur collyrium quod liquore ovi dissolvatur.* But in the meantime you must diligently observe whetheryou put the eye to any great paine. Wherefore now and then by putting anodyne medicines thereto, it will be good to comfort it. Also you may make *collyria* of the decoction of Plantaine, fenugreeke, wormewood, with a little quantity of Sugar Candy, *tutia*, gumme *tragacanth*, myrrhe and vitmoll dissolved therein. When the ulcer is mundified, the following sarcoticke will be of good use.

Argemon.
Epicauma.
The cure

A *Collyrium*
to cleanse the
Vlcers of the
eyes.

R. sarcocolla in lacte muliebri nutrita, ʒiij. pul. diatreos simplicis, gum. arabici, tragacanth, an. ʒʒ. mucilaginis sanugraci quantum sufficit ut inde fiat collyrium. But you must note that for moyst Vicers, powders are more convenient than *Collyria*.

A sarcoticke
Collyrium.

When the ulcer is playned or filled with its proper flesh, it may bee cicatrized with the following *collyrium*. *R. tutia, cadmia ut decet preparata, cerusa, antimony, olivani, an ʒʒ. myrrha, sarcocolla, sanguinis Draconis, aloes, ʒij, an. ʒʒ. cum aqua plantaginis fiat collyrium;* or the powder onely may be conveniently strewed thereon.

An epulotick
Collyrium.

Celsus hath noted that the cicatrizing of the eyes is incident to two dangers, that is, least they be too hollow, or else too thick. If too hollow, they must be filled by the following remedy, *R. Papaveris lachryma, ʒʒ. sagapeni, opopanax, an. ʒʒ. aruginis ʒj.*

Lib. 6. cap. 6.

cumini ʒiij. piperis ʒij. cadmia lota & cerusa, an. ʒʒ. cum aqua pluviali fiat collyrium.

A *Collyrium*
for hallow
scarres.

But if the scars be thicke or grosse, the following remedy will extenuate them. *R. cinamom. acacie, an. ʒʒ. cadmia elota, croci, myrrha, papaveris lachryma, gum. arabici, an. ʒj piperis albi, thuris, an. ʒʒ. aris combusti, ʒiij. cum aqua pluviali fiat collyrium.*

But if the scarre be upon the cornea or horny coate, so that it cover the pupilla or sight, the sight will be intercepted by the denseness of the membrane. Here you must also observe, that the scarres that are on the Cornea are white, but these on the Adnata are red, because this is spread over with more little veines than that.

The scarres of
the fleshy coate
are white and
these of the
Adnata red.

CHAP. XIII.

Of the Ozæna and Vicers of the Nose.

THe *Ozæna* is a deepe and stinking Vicer in the inside of the nose, sending forth many crusty and stinking excrements. *Celsus* saith that such ulcers can scarcely be healed. It is caused (as *Galen* saith) by the distillation of acride and putride humors from the head into the nosethrills about the mammillary processes. For the cure, the patient must eat sparingly, and his meate must neither be sharpe nor strong; the humor being prepared must be purged; the head dried and strengthened, that so it may neither admit the excrementitious humors, nor send them downe; then must we come to the part affected with the Vicer. The Vicer must be dried with a repelling medicine, such as is the juice of Pomegranats boyled to the halfe in a brasle vessell; the powder of Calamint, Cresses, white Hellebore, the juyce of Cresses with Alume and other things which you may reade in *Celsus*.

Lib. 6. cap. 8.
Ga. Lib. 3. de
comp. med.
secunda. ocos
cap. 3.
The cure.

Galen out of *Archigenes* wishes, to draw up into the nosethrills the juyce of Calamint, or that the Calamint it selfe being dried, and made into powder, may bee blowne with a quill into the nose. Others use this following powder. *R. ros. rab. mint.*

mint. calam. arom. rad. angelica. gentian. macis. caryop. an. ʒʒ. camph. ambræ. an. gr. iiii. mosch. gr. vj. fiat pulvis subtilissimus. Manardus writes that the Urine of an Asse, though a nasty medicine, is an excellent remedy in this affect. But if the inveterate and contumacious evill doe not yeeld to these remedies, then you must have recourse to Coprose, Verdigreece, *sal ammoniacum*, and Alume with Vinegar. It divers times happens that the Vlcer spreading on, comes to take hold of the *Ossa ethmoidæ* or five-like bones; in which case you must not forcibly plucke them out; but referre the whole businesse to nature, and expect when they shall come away of themselves, making in the meane while injections into the nozethrills of *aqua vitæ*, wherein Cephalicke powders have beene steeped for the greater drying.

An injection when the *Ozæna* shall come to the *Ossa Ethmoidæ*.

CHAP. XV.

Of the Vlcers of the mouth.

Aph. 24. sect. 3. Celsus lib. 6. cap. 11. Galen. com. ad 3. lib. eptæm.



Of this tribe are the *Aphthæ*, Vlcers familiar to little children, according to *Hippocrates*. They oft times beginne at the gums, and by the palate of the mouth creepe into the *uvula*, throtle, and over all the mouth, as *Celsus* saith. *Galen* makes two kinds of *Aphthæ*; the one of easie cure, such as that which usually troubles children by reason of the acrimony of the nurses milke; the other is maligne by reason of an afflux of an evill humor (that is, venenate and maligne) into the mouth.

The cure.

For the cure, it shall be good to abstaine from all acride things, and if it be a sucking child, it will not be amisse to temper the nurses milke with refrigerating meates, bathing the whole body, and fomenting the dugges with warme water; for all the members in children are most tender, and as it were mucous, and their mouths are unaccustomed to meates and drinckes. For topicke medicines, you must make choise of such which may quickly and readily worke the effect; for heere the condition of the affected part is such, that they cannot long remaine and adhere thereto. Therefore if the Vlcer be maligne, it must be lightly touched with *aqua fortis* which hath beene used in separating mettalls and which besides is tempered with sixe parts of common water. You may for the same purpose use the oyles of Vitrioll, Sulphur, Antimony, Mercurie water and the like.

Aetius wishes you to touch and correct such Vlcers with a Locke of wooll dipped in scalding oyle, and so fastened to the end of a probe, untill they waxe white and become smooth or plaine. For so their eating and spreading force will at length be bridled, and laudible flesh grow up in place of that which is eaten. After such burning it will be good to wash the mouth with the following gargarisme, which also of its selfe alone will serve to cure *Aphthæ*, which are not maligne.

A gargarisme for the *Aphthæ*.

Lib. 6. meth. Cap. 10.

Vlcers of the palate must be quickly and carefully dressed.

R. hordei integri p. j. plantag. ceterach. pilosella. agrimonia. an. M. j. fiat decoctio ad lb. j. in qua dissolve mellis rosati ʒi. diamoron, ʒʒ. fiat gargarisma. You may also make other gargles, of Pomegranate pills, Balausties, Sumach, Berberies, red roses being boyled, and dissolving in the strayned liquor *Diamoron* and *Dianuncum* with a little Alume. For *Galen* writes, that simple Vlcers of the mouth are healed with things which dry with moderation; now *Diamoron* and *Dianuncum* are such. But others stand in neede of strong medicines, with such like. If the palate be seized upon, we must use the more diligence and care; for there is danger, least being the part is hot and moist, the bone which lyes under which is rare and humide, may bee corrupted by the contagion and fall away, and the voyce or speech be spoyled. If the Vlcer be pockie, omitting the common remedies of Vlcers, you must speedily betake your selfe to the proper antidote of that disease, to wit, quick-silver.

Aetius lib. 6. cap. 3. Celsus lib. 6. cap. 13.

Fistulous Vlcers often take hold on the Gummies, whence the roote of the next tooth becomes rotten, and so farre that the acrimony of the *Sanies* oft times makes its selfe a passage forth on the outside under the chinne; which thing puts many into a false conceite of the *scrophula* or Kings evill, and consequently of an uncurable disease. In such a case *Aetius*, and *Celsus* counsell is, to take out the rotten tooth, for so

the

the *Fistula* will be taken away, the Gum pressing and thrusting its selfe into the place of the tooth which was taken forth; and so the cause nourishing the putrefaction being taken away, (that is, the tooth) the rest of the cure will be more easy. The Ulcers of the tongue may be cured by the same remedies by which the rest of the mouth; yet those which breede on the side thereof endure very long, and you must looke whether or no there be not some sharpe tooth over against it, which will not suffer the Ulcer in that place to heale; which if there be, then must you take it away with a file.

CHAP. XVI.

Of the Ulcers of the Eares.

Ulcers are bred in the auditory passage both by an externall cause, as a stroke, or fall, as also by an internall, as an abscesse there generated. They oft times flow with much matter, not there generated, for such Ulcers are usually but small and besides in a spermatike part, but for that the braine doth that way disburden its selfe.

Their causes

For the cure, the cheefe regard must be had of the antecedent cause, which feedes the Ulcer, and it must be diverted by purging medicines, Masticatories and Errhines.

The cure,

This is the forme of a Masticatory. ʒ. Mastice. ʒj. staphisagr. & pyreth. an. ʒj. cinam. & caryoph. an. ʒʒ. fiant Masticatoria, utatur mane & vespere.

A masticatory

But this is the forme of an Errhine. ʒ. succi betonice. mercurialis & melissa, an. ʒʒ. vini albi ʒj. misce & frequenter naribus attrahatur.

An Errhine.

For topicke medicines we must shunne all fatty and oily things, as *Galen* sets downe in *Method. medendi*, where he findes fault with a certaine follower of *Thessalus* who by using *Tetrapharmacum*, made the Ulcer in the eare grow each day more filthy than other, which *Galen* healed with the Trochisces of *Andronius* dissolved in Vinegar, whose composure is as followeth. ʒ. balaust. ʒij, alumin. ʒj. atrament. sutor. ʒij, myrrha. ʒj, thur. aristoloch. gallarum, an. ʒij, salis ammon. ʒj. exsicciantur omnia melicrato, & fiant trochisci.

The composition of *Andronius* trochisces.

Galen in the same place witnesseth, that he hath healed inveterate Vicers and of two yeares old of this kind, with the scales of Iron made into powder, and then boyled in sharpe Vinegar untill it acquired the consistence of Honey: Moreover an Oxes gall dissolved in strong Vinegar, and dropped in warme, amends and dryes up the putrefaction wherewith these Ulcers flow. Also the scales of Iron made into powder boyled in sharpe Vinegar, dried and strewed upon them. But if the straitnesse of the passages should not give leave to the matter contained in the windings of the eares to passe forth, then must it bee drawne out with an Instrument thereupon called a *Pyoulcos*, or matter-drawer, whereof this is the figure.

Scales of Iron,

Of the *Pyoulcos* *Galen* makes mention on 2 ad Glauconem.

The figure of a Pyoulcos, or matter-drawer.



CHAP. XVII.

Of the Vlcers of the Windpipe, weazon, stomacke and Guts.

The Causes.



Hese parts are ulcerated either by an externall cause as an acride medicine, or poyson swallowed downe; or by an internall cause, as a maligne fretting humor which may equall the force of poyson generated in the body, and restrained in these parts. If the paine be encreased by swal-

Signes.

lowing or breathing, it is the signe of an Vlcer in the weazon, or windpipe joyning thereto; But the paine is most sensibly felt when as that which is swallowed is either soure or acride, or the ayre breathed in, is more hot or cold than ordinary. But if the cause of paine lye fastened in the stomacke, more greevous symptomes urge; for sometimes they swound, have a nauseous disposition and vomiting, convulsions, gnawings, and paine almost intollerable, and the coldnesse of the extreame parts; all which when present at once, few scape unlesse such as are young, and have very strong bodyes. The same affect may befall the whole stomacke, but because both for the bitternesse of paine, and greatnesse of danger, that Vlcer is farre more greevous which takes hold of the mouth of the Ventricle, honoured by the Ancients with the name of the heart; therefore Physitions doe not make so great a reckoning of that which happens in the lower part of the stomacke. Now we know that the Guts are ulcerated if Pus, or much purulent matter come forth by stooles; if blood come that way with much griping; for by the Pus staying and as it were gathered together in that place, there is as it were a certaine continuall *Tenesmus*, or desire to goe to stooles.

Gal. lib. 8. de
loc. affect.
cap. 5.

Lib. 4. cap. 5.
Methodo.

The cure.

Now all such Vlcers are cured by meates and drinckes, rather than by medicines, according to *Galen*. Therefore you must make choise of all such meates and drinckes as are gentle, and have a lenitive faculty, shunning acride things; for *Tutia*, Lytharge, Ceruse, Verdigreece and the like, have no place heere, as they have in other Vlcers. But when as the Vlcer shall be in the Gullet or Weazon, you must have a care that such things may have some visciduity or toughnesse, and be swallowed by little, and little, and at diverse times; otherwise they will not much availe, because they cannot make any stay, in these commune wayes of breath and meat; therefore they presently

How to take
medicines for
Vlcers of the
throate.

slip downe and flow away; wherefore all such things shall be used in forme of an *Eglema*, to be taken lying on the backe, and swallowed downe by little and little, opening the muscles of the throate, least the medicine passing downe sodainely and in great quantity, cause a cough, a thing exceeding hurtfull to these kinds of Vlcers. When they must be clenfed, you shall have crude honey, which hath a singular faculty, above all other detergent things, in these kind of Vlcers. But when they can conveniently swallow, you shall mixe Gumme Tragacanth dissolved in some astringent decoction. In Vlcers of the stomacke all acride things (as I have formerly advised) must be shunned, as those which may cause paine, inflammation and vomite, and besides hinder the digestion of the meate. Therefore let them frequently use a pisan, and sugered gellyes wherein Gumme Tragacanth, and bole Armenicke have beene put, the decoction of Prunes, Dates, Figges, Raisons, Honey, Cowes milke boyled with the yoalkes of egges, and a little common honey. When they are to be agglutinated, it will be convenient to make use of austere, astringent, and agglutinative things which want all acrimony, and ungratefull taste, such as are *Hypocistis*, Pomegranate flowres and pills, *terra sigillata*, *sumach*, *acacia*, a decoction of quinces, the Lentiske wood, the tops of Vines, of brambles, myrtles, made in astringent wine, unlesse there be feare of inflammation. Their drinke shall be *Hydromel* water with

Why acride
things must be
shunned in
these Vlcers.

How power-
full Honey is
to cure such
kind of Vlcers:

Sugar, syrupe of Violets and Iujubes. Honey mixed with other medicines is a very fitting remedy for Vlcers of the guts and other parts more remote from the stomacke; for if you shall use astringent medicines alone of themselves, they will sticke to the stomacke; neither will they carry their strength any further; but honey mixed with them, besides that it distributes them to the rest of the body, and helps them forwards to the affected parts; also clenfes the Vlcers themselves. Here also Asses milke may with good successe be used in stead of Goates or Cowes milke. The use

of

of a vulnerary potion is also commendable, if so bee that it bee made of such hearbes and simples, as by a certaine tacite familiarity have respect to the parts affected. But the Vlcers of the Guts have this difference amongst themselves, that if the greater guts be affected, you may heale them with a Glyster and injections, made also sharpe to correct the putrefaction; such as are those which are made of Barly water, or wine with *Ægyptiacum*. But if the small guts be ulcerated, they must bee rather healed by potions and other things taken at the mouth, for that (as *Galen* saith) these things which are put up into the body by the Fundament, doe not commonly ascend to the small or slender guts, but such as are taken at the mouth cannot come unlesse with the losse of their faculty, so farre as the great guts.

Egyptiacum
good for the
Vlcers of the
greater guts.
Lib. 5. meth.

CHAP. XVIII.

Of the Vlcers of the Kidneyes and Bladder.

Vlcers are caused in the Kidneyes and Bladder, either by the use of acride meates, drinkes, or medicines, as *Cantharides*; or else by the collection of an acride humor bred in that place, sent oralne thither; or else by the rupture of some vessell, or an abscess broken and degenerated into an Vlcer, as it sometimes comes to passe. They are discerned by their site, for the paine and heaviness of Vlcers of the Reines comes to the Loynes, and the Pus or matter is evacuated well and thoroughly mixed with the Urine.

Causes.

Signes.

Neither doth the Pus which flowes from the reines stinke so ill, as that which is cast forth of the bladder; the reason is, for that the bladder being a bloodlesse, fleshlesse & membranous part, hath not such power to resist putrefaction. That pus which flowes from the Kidneyes never flowes without water; and although by long keeping in an Urinall, it at length subside or falls to the bottome, and may be seene separated; yet when it is first made, you may see it perfectly mixed with the Urine; but that Pus which flowes from the bladder is oft times made alone without Urine; & usually it comes to passe that the Pus, or matter which flowes from the ulcerated Kidneyes, hath in it certaine caruncles, or as it were haire, according to the rule of *Hippocrates*. Those who in a thicke Urine have little caruncles, and as it were haire come forth together therewith, they come from their Kidneyes; but on the contrarie those who have certaine bran-like scalles come from them in a thicke Urine, their bladder is scabby or troubled with a scabby Vlcer.

*Hip. Aphor. 81**sect. 4.**Aphor. 76.**sect. 4.**Aphor. 77.**sect. 4.*

For the cure, it is expedient that the belly be soluble either by nature or Art, and the use of mollifying Glysters. And it is good to vomit sometimes, so to draw backe the humors by whose conflux into the affected part the Vlcer might bee fed and made more sordide and filthy. You must beware of strong purgations, least the humors being moved and too much agitated, the matter fit to nourish the Vlcer may fall downe upon the Kidneyes or bladder. The ensuing potion is very effectually to mundifie those kind of Vlcers.

The cure.

Why we must
shunne strong
purgos.

R. *Hordei integri*, M. ij. *glycyrrhizæ ras. & contus.* ʒB. *rad. acetosæ & petrosel. an.* ʒvj. *fiat decoctio ad lb. j. in colatura dissolve mellis dispum.* ʒij. Let him take every morning the quantity of foure Ounces. *Gordonius* exceedingly commends the following Trochisces. R. *quater sem. frig. maj. mundatorum, sem. papaveris albi, sem. malvæ, portul. cydon. baccarum myrti, tragacanth. gum. arab. nucum pincarum mund. pistach. glycyrrhizæ mund. mucaginis sem. psilg, amygd. dulc. hordei mund, an.* ʒij. *bol. armeni, sang. drac. spodi, rosarum, myrrha an.* ʒB. *excipiantur hydromelite, & singantur trochisci singuli ponderis ʒij.* Let him take one thereof in the morning dissolved in Barly water or Goates milke. *Galen* bidsto mixe honey and diurectick things with medicines made for the Vlcers of the Reines and bladder, for that they gently move Urine, and are as vehicles to carry the medicines to the part affected. Vlcers of the bladder are either in the bottome thereof, or at the necke and urinary passage.

Things to
cense these
Vlcers.

Trochisces for
the Vlcers of
the Kidneyes
and bladder.

4. Method.

If they be in the bottome, the paine is almost continuall; if in the necke, the paine then prickes and is most terrible when they make water and presently after. The Vlcer which is in the bottome sends forth certaine scaly or skinny excrements together with the Urine; but that which is in the necke, causes almost a continuall *Tentigo*. Those which are in the bottome are for the most part incurable, both by

Signes to
know what
part of the
bladder is
ulcerated.

The

reason

Why ulcers in
the bottome of
the bladder
are uncurea-
ble.

reason of the bloodlesse and nervous nature of the part, as also for that the Vlcer is continually chased and troubled by the acrimony of the Vrine, so that it can hardly be cicatrized. For even after making of water some reliques of the Vrine alwayes remaine in the bottome of the bladder, which could not therefore passe forth together with the rest of the Vrine, for that for the passing forth of the Vrine, the bladder being distended before, falls and is complicated in its selfe. Vlcers of the bladder are healed with the same medicines as those of the reines are; but these not onely taken by the mouth but also injected by the urinary passage. These injections may be made of *Gordonius* his Trochiscs formerly prescribed, being dissolved in some convenient liquor; but because Vlcers of the bladder cause greater and more sharpe paine than those of the Kidnyes, therefore the Chirurgion must bee more diligent in using Anodynes. For this purpose, I have often by experience found, that the oyle of hen-bane made by expression gives certaine helpe. Hee shall doe the same with Cataplasmes and liniments applyed to the parts about the *Pecten* and all the lower belly and *perinaum*, as also by casting in of Glisters. If that they stinke, it will not be amisse to make injection of a little *Egyptiacum* dissolved in wine, plaintaine or rose water. For I have often used this remedy in such a case with very prosperous successe.

Egyptiacum
for the ulcers
of the bladder.

CHAP. XIX.

Of the Vlcers of the wombe.

The causes.



Vlcers are bred in the wombe either by the confluxe of an acride, or biting humor, fretting the coates thereof, or by a tumor against nature degenerating into an Absesse, or by a difficult and hard labour; they are knowne by paine at the *perinaum*, and the efflux of Pus and Sanies by the privity. All of them in the opinion of *Avicen* are either putride, when as the *Sanies* breaking forth is of a stinking smell, and in colour resembles the water wherein flesh hath beene washed; or else fordide, when as they flow with many virulent and crude humors; or else are eating or spreading Vlcers, when as they cast forth blacke *Sanies*, and have pulsation joyned with much paine. Besides they differ amongst themselves in site, for either they possesse the necke and are known by the sight, by putting in a *speculum*; or else are in the bottome, and are manifested by the condition of the more liquid and ferous excrements, and the site of the paine. They are cured with the same remedies wherewith the ulcers of the mouth to wit, with *aqua fortis*, the oyle of Vitrioll and antimony, and other things made somewhat more milde, and corrected with that moderation, that the ulcerated parts of the wombe may bee safely touched with them; it is requisite that the remedies which are applyed to the Vlcers of the wombe, doe in a moment that which is expected of them, for they cannot long adhere or sticke in the wombe, as neither to the mouth. *Galen* saith that very drying medicines are exceeding fit for the Vlcers of the wombe, that so the putrefaction may be hindred or restrained, whereto this part as being hot and moyst is very subject; besides that the whole body unto this part as unto a sinke sends downe its excrements. If an ulcer take hold of the bottome of the wombe, it shall be cleansed and the part also strengthened by making this following injection. R. *hordei integri* p. ij. *guajaci*. ʒj. *rad. Ireos*. ʒʒ. *absinth. plant. centaury. utriusque*, an. M. j. fiat decoct. in aqua fabrorum ad lb. ij. in quibus dissolve mellis rosati, & *syrupi de absinthio*, an. ʒiij. fiat injectio. For amending the stinking smell I have often had certaine experience of this ensuing remedy. R. *vinirub.* lb. j. *unguent. egyptiaci* ʒij. *bulliant parum*. Thus the putrefaction may be corrected and the painefull maliciousnesse of the humor abated. Vlcers when they are clenfed must presently be cicatrized; that may be done with Alume water, the water of plantaine wherein a little virrioll or Alume have beene dissolved. Lastly, if remedies nothing availing, the Vlcer turne into a Cancer, it must be dressed with anodynes and remedies proper for a Cancer, which you may finde set downe in the proper treatise of Cancers. The cure of Vlcers of the fundament was to bee joyned to the cure of these of the wombe; but I have thought good to referre it to the treatise of *Fistula's*, as I doe the cure of these of the urinary passage to the Treatise of the *Lues venerea*.

Lib. 3. sect. 12.
tract. 2. cap. 5.
Signes.

The cure.

Why strongly
drying things
are good for
Vlcers of the
wombe.

An injection
for an Vlcer in
the bottome of
the wombe.

An injection
hindring pu-
trification.

CHAP. XX.

Of the Varices and their cure by cutting.



Varix is the dilatation of a Veine, some whiles of one and that a simple branch, otherwhiles of many. Every *Varix* is either strait or crooked, and as it were infolded into certaine windings within its selfe. Many parts of the body are subiect to *Varices*, as the temples, the region of the belly under the Navill, the testicles, wombe, fundament, but

What a *Varix* is and what be the differences thereof.

principally the thighes and legges. The matter of them is usually melancholy blood, for *Varices* often grow in men of a melancholy temper, and which usually feed on grosse meates, or such as breed grosse and melancholy humors. Also women with child, are commonly troubled with them, by reason of the heaping together of their suppressed menstruell evacuation. The precedent causes are a vehement concussion of the body, leaping, running, a painfull journey on foote, a fall, the carrying of a heavy burden, torture or Racking. This kind of disease gives manifest signes thereof by the largenesse, thicknesse, swelling or colour and the Veines.

The matter.

The causes.

Signes.

It is best not to meddle with such as are inveterate, for of such being cured there is to be feared a reflux of the melancholy blood to the noble parts, whence there may be imminent danger of malignant Vlcers, a Cancer, Madnesse or suffocation.

The cure.

When as many *Varices* and diversly implicate are in the legges, they often swell with congealed and dried blood, and cause paine which is increased by going and compression. Such like *Varices* are to be opened by dividing the veine with a Lancet, and then the blood must be pressed out, and evacuated by pressing it upwards and downwards; which I have oft times done, and that with happy successe to the patients, whom I have made to rest for some few dayes, and have applyed convenient medicines. A *Varix* is often cut in the inside of the legge a little below the knee, in which place commonly the originall thereof is seene. He which goes about to intercept a *Varix* downwards from the first originall and as it were fountaine thereof, makes the cure far more difficult. For hence it is divided as it were into many rivulets, all which the Chirurgion is forced to follow.

The cutting of *Varices*

A *Varix* is therefore cut or taken away so to intercept the passage of the blood and humors mixed together therewith, flowing to an Ulcer seated beneath; or else least that by the too great quantitie of blood, the vessell should be broken, and death be occasioned by a hæmorrhagic proceeding from thence. Now this is the manner of cutting it. Let the patient lye upon his backe on a bench or table, then make a ligature upon the legge in two places the distance of some foure fingers each from other, wherein the excision may be made, for so the Veine will swell up and come more in sight, and besides you may also marke it with inke, then taking the skin up betweene your fingers cut it longwayes according as you have marked it, then free the bared veine from the adjacent bodies; and put there under a blunt pointed needle (least you pricke the veine) thred with a strong double thred, and so binde it fast; and then let it be opened with a Lancet, in the middle under the Ligature just as you open a veine, and draw as much therehence as shall be fit. Then straight make a Ligature in the lower part of the forementioned Veine, and then cut away as much of the sayd Veine as is convenient betweene the Ligatures, and so let the ends thereof withdraw themselves into the flesh above and below; let these ligatures alone untill such time as they fall away of themselves. The operation being performed, let an astringent medicine be applyed to the wound and the neighbouring parts; neither must you stirre the wound any more for the space of three dayes. Then doe all other things as are fit to be done to other such affects.

For what intention a *Varix* must be cut.

Paulus cap. 82. lib. 6. The manner how to cut it.

CHAP. XXI.

Of Fistula's.

What a Fistula
is.



Fistula is a sinuous, white, narrow, callous and not seldome unperceivable Vicer. It tooke its denomination from the similitude of a reeden (Fistula) that is, a pipe, like whose hollownes it is. A Fistula is bred in sundry parts of the body, and commonly followes upon Abscesses or Vlcers not well cured.

What a Callousus.

The differences of Fistula's.

The signes.

The signe that the bone is bare from the condition of the matter which is cast forth.

Acrid tetra. 4. fol. 2. cap. 55.

Old Fistula's if closed prove mortall.

A *Callous* is a certaine fleshy substance, white, solid, or dense and hard, dry and without paine, generated by heaping up of dried excrementitious phlegme, or else adust melancholy, encompassing the circuite of the Vicer, and substituting its selfe into the place of laudible flesh. The *Sinus* or cavity of a Fistula is sometimes dry, and otherwhile drops with continuall moisture: sometimes the dropping of the matter sodainly ceases, and the orifice thereof is shut up, that so it may deceive both the Chirurgion and the Patient with a false shew of an absolute cure; for within a while after it will open againe and run as formerly it did. Some Fistula's are bred by the corruption of a bone, others of a nerve, others of membranes, and others of other parts of the body. Some run straight in, others and that the greater part, have turnings and windings; some have one, others have more orifices and windings; some are at the Ioynts, others penetrate into some capacity of the body, as into the chest, belly, guts, womb, bladder; some are easily, others difficultly cured, and some wholly uncurable. There are divers signes of Fistula's according to the variety of the parts they possesse; for if that which you touch with the end of your probe make resistance, and resound, then you may know that it is come to the bone; and then if the end of the probe slip up and downe as on a smooth and polite superficies, it is a signe that the bone is yet sound; but if it stop and stay in any place as in a rough way, then know that the bone is eaten, rough and perished; sometimes the bone lies bare, and then you neede not use the probe. Besides also it is a signe that the bone is affected, if there be a purulent efflux of an unctuous or oily matter, not much unlike that marrow wherewith the bone is nourished. For every excrement shewes the condition of the nourishment of the part whence it is sent; in a Fistula which penetrates to a Nerve, the patient is troubled with a pricking paine, especially when you come to search it with a probe, especially if the matter which flowes dewne be more acrid. Oft times if it be cold, the member is stupified the motion being weakned; besides also the matter which flowes from thence is more subtle, and somewhat like unto that which flowes from the bones, yet not oily nor fat, but sanious and viscous resembling the condition of the alimentary humor of the Nerves. The same usually appeares and happens in Fistula's which penetrate to the Tendons and those membranes which involve the muscles. If the Fistula bee within the flesh, the matter flowing thence is more thicke and plentifull, smooth, white and equall. If it descend into the Veines or Arteries, the same happen as in those of the Nerves; but that there is no such great paine in searching with your probe, nor no offence or impediment in the use of any member: yet if the matter of the Fistulous Vicer be so acrid, as that it corrode the vessells, blood will flow forth; and that more thicke if it be from a veine, but more subtle and with some murmuring if from an Artery. Old Fistula's and such as have run for many yeares, if suddainly shut up, cause death, especially in an ancient and weake body.

CHAP. XXII.

Of the cure of Fistula's.

How to finde out the windings and cavities of Fistula's.



Or the cure; in the first place it wil be expedient to search the Fistula; & that either with a waxe size, a probe of lead, gold or silver, to find out the depth and windings or corners thereof. But if the Fistula be hollowed with two

or

or more orifices, and those cuniculous, so that you cannot possibly and certainly search or finde them all out with your probe; then must you cast an injection into some one of these holes, and so observe the places where it comes forth, for so you may learne how many, and how deepe or superficially cavities there be; then by making incisions you must lay open and cut away the callous parts. You must make incisions with an incision knife or razor, or else apply actuall or potentiall caustics; for nature cannot unlesse the Callous substance bee first taken away, restore or generate flesh or agglutinate the distant bodies. For hard things cannot grow together, unlesse by the interposition of glue, such as is laudible blood; but a callous body on all sides possessing the surface of the ulcerated flesh, hinders the flowing of the blood out of the capillary veines for the restoring of the lost substance and uniting of the disjoyned parts. If you at any time make causticke injections into the Fistula, you must presently stop the orifice thereof, that so they may have time to worke the effect, for which they are intended. Which thing we may conjecture by the tumor of the part, the digesture of the flowing matter, and its lesser quantity. Then you must hasten the falling away of the Eschar, and then the Vlcér must be dressed like other Vlcers. But oft times the Callous which possesses the sinuous cavity of a Fistula, overcome by the power of acrid and escharoticke medicines comes whole forth, and falls out like a pipe, and so leaves a pure Vlcér underneath it. Which I observed in a certaine Gentleman, when I had washed with strong *Agyptiacum* divers times a Fistulous Vlcér in his thigh shot through with a bullet; then presently by putting in my Balsame formerly described, he grew well in a short time. Fistula's which are neare great vessells, Nerves or principall intrailles, must not be medled with, unlesse with great caution. When a Fistula proceeds by the fault of a corrupt bone, it is to be considered whether that fault in your bone be superficially, or deeper in, or whether it is wholly rotten and perished. For if the default be superficially it may easily be taken away with a desquamatory Trepan; but if it penetrate even to the marrow, it must be taken forth with cutting mullets, first having made way with a *Terebellum*. But if the bone be quite rotten and perished, it must bee wholly taken away, which may be fitly done, in the joynts of the fingers, the radius of the Cubite and Legge; but no such thing may be attempted in the socket of the Huckle bone, the head of the Thigh bone, or any of the Rack bones when they are mortified, neither in those Fistula's, which are of their owne nature incurable; but you shall thinke you have discharged your duty and done sufficiently for the Patient, if you leave it with a prognosticke. Of this nature are Fistula's which penetrate even to the bowells, which come into the parts overspread with large vessells or Nerves, which happen to effeminate and tender persons, who had rather dye by much, than to suffer the paine and torment of the operation. Like caution must be used, when by the cutting of a Fistula there is feare of greater danger, as of convulsion if the disease be in a nervous part. In these and the like cases the Chirurgion shall not set upon the perfect cure of the disease, but shall thinke it better to prevent by all meanes possible that the disease by fresh supplies become no worse, which may be done if he prevent the falling downe of any new defluxion into the part; if by an artificiall diet hee have a care that excrementitious humors be not too plentifully generated in the body; or so order it, that being generated they may be evacuated at certaine times, or else diverted from the more noble to the base parts. But in the meane space it shall be requisite to waite the faulty flesh, which growes up more than is fitting in the Vlcér, and to cleanse the *sordes* or filth, with medicines, which may doe it without biting or acrimony and putrefaction.

Causticke injections.

Caustic lib. 2.

Remedies for a Fistula proceeding from a corrupt bone.

The cure of what Fistula's may be attempted, and which may not.

A palliative cure of a Fistula.

CHAP. XXIII.

Of the Fistula's in the Fundament.

Fistula's in the Fundament are bred of the same causes as other kinds of Fistula's are; to wit, of a wound or abscesse not well cured, or of a hæmorrhoides which is suppurated. Such as are occult, may be knowne by dropping downe of the *sanious* and purulent humor by the Fundament and the

The causes.

Signes.

the paine of the adjacent parts. But such as are manifest by the helpe of your probe you may finde whither they goe and how farre they reach. For this purpose the Chirurgion shall put his finger into the Fundament of the patient, and then put a Leaden probe into the orifice of the Fistula, which if it come to the finger without interposition of any *medium*, it is a signe it penetrats into the capacity of the Gut. Besides also then there flowes not onely by the fundament but also by the orifice which the maligne humor hath opened by its acrimony, much matter, somewhiles sanious, and oft times also breeding Wormes. Fistula's may be judged cuniculous, and running into many turnings and windings, if the probe doe not enter farre in, and yet notwithstanding more matter flowes thence than reason requires should proceede from so small an Vlcer.

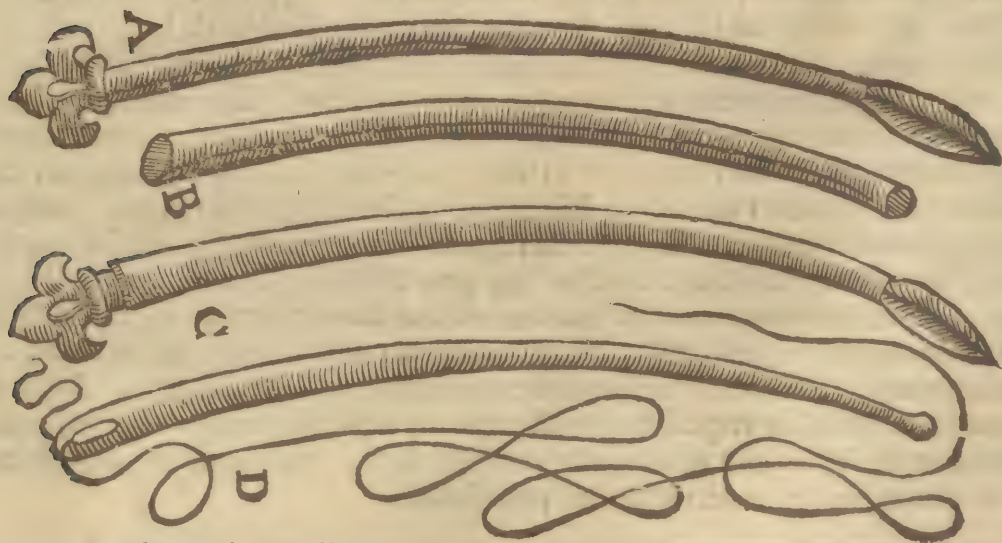
Symptomes.

The art of
binding and
cutting a Fi-
stula of the
Fundament.

You may in the orifices of all Fistula's, perceive a certaine callous wart, which the common Chirurgion steame a Hens arse. Many symptomes accompany Fistula's which are in the Fundament, as a *Tenesmus*, strangury & falling downe of the Fundament. If the Fustula must be cured by manuell operation, let the patient lye so upon his backe, that lifting up his legges, his thighs may presse his belly, then let the Chirurgion, having his naile pared, put his finger belmeared with some oyntment into the patients Fundament, then let him thrust in at the orifice of the Fistula a thick Leaden needle drawing after it a thread consistng of thread and horse haire woven together, and then with his finger taking hold thereof and somewhat crooking it, draw it forth at the Fundament, together with the end of the thread. Then let him knit the two ends of the thread with a draw or loose knot, that so hee may straiten them at his pleasure. But before you bind them you shall draw the thread somewhat roughly towards you as though you meant to saw the flesh therein contained, that you may by this means cut the Fistula without any feare of an Hæmorrhage, or flux of blood.

It sometimes happens that such Fistula's penetrate not into the Gut; so that the finger by interposition of some callous body cannot meete with the needle or probe. Then it is convenient to put in a hollow iron or silver probe so through the cavity thereof to thrust a sharp pointed needle, and that by pricking and cutting may destroy the *callous*; which thing you cannot performe with the formerly described leaden probe, which hath a blunt point, unlesse with great paine.

The description of a hollow Silver probe to be used with a needle,
as also a Leaden probe.



A. Shewes the Needle.

B. The hollow probe.

C. The needle with the probe.

D. The Leaden needle drawing a thread after it.

The *Callus* being waisted, the Fistula shall be bound as wee formerly mentioned That which is superficially needs no binding, onely it must be cut with a crooked *scal- prum*, and the *Callus* being consumed, the rest of the cure must be performed after the

the manner of other Vlcers. But you must note, that if any parcell of the Callous body remaine untoucht by the medicine or instrument, the Fistula reviving againe will cause a relapse.

CHAP. XXIII.

Of Hæmorrhoides.

Hæmorrhoides, as the word is usually taken, are tumors at the extremities of the veines encompassing the Fundament, caused by the defluxion of an humor commonly melancholicke, and representing a certaine kind of *Vari-ces*. Some of these run at an hole being opened, which sometimes in space of time contracts a *Callus*; others onely swell, and cast forth no moisture; some are manifest; others lye onely hidde within. Those which runne, commonly cast forth blood mixed with yellowish serous moisture, which stimulates the blood to breake forth, and by its acrimony opens the mouthes of the veines. But such as do not run, are eyther like blisters, such as happen in burnes, and by practitioners are usually called *vesicales*, and are caused by the defluxion of a phlegmaticke and serous humor; or else represent a Grape, whence they are called *Vvales*, generated by the afflux of blood laudible in qualitie, but overabundant in quantity; or else they expresse the manner of a disease, whence they are termed *morales*, proceeding from the suppression of melancholicke blood; or else they represent warts, whence they are stiled *Verrucæ*, enjoying the same materiall cause of the generation as the *morales* doe.

What they
are.

Their differ-
ences.

This affect is cause of many accidents in men; for the perpetuall efflux of blood extinguisheth the vivide and lively colour of the face, calls on a dropsie, overthrowes the strength of the whole body. The fluxe of Hæmorrhoides is commonly every moneth, sometimes onely foure times in a yeare. Great paine, inflammation, an Abscesse which may at length end in a Fistula, unlesse it be resisted by convenient remedies, doe oft times forerunne the evacuation of the Hæmorrhoides. But if the Hæmorrhoides flow in a moderate quantity, if the patients brooke it well, they ought not to be stayed, for that they free the patients from the feare of imminent evils, as melancholy, leprosie, strangury and the like. Besides, if they bee stopped without a cause, they by their refluxe into the Lungs cause their inflammation, or else breake the vessells thereof, and by flowing to the Liver cause a dropsie by the suffocation of the native heate; they cause a dropsie and universall leanenesse on the contrary, if they flow immoderately, by refrigerating the Liver by losse of too much blood; wherefore when as they flow too immoderately, they must be stayed with a pledget of hares downe dipped in the ensuing medicine. *℞ pul. aloes, thuris, balanst. sang. draconis, an. ʒʒ. incorporentur simul cum ovi albumine, fiat medicamentum ad usum.* When they are stretched out and swolne without bleeding, it is convenient to beate an Onion roasted in the embers with an Oxes gall, and apply this medicine to the swolne places, and renew it every five houres. This kind of remedy is very prevalent for internall Hæmorrhoides; but such as are manifest may be opened with horse-leaches, or a Lancet. The juyce or masse of the hearbe called commonly Dead-nettle or Arkeangell, applyed to the swolne Hæmorrhoides opens them, and makes the congealed blood flow there hence. The *Fungus* and *Thymus* being diseases about the fundament are cured by the same remedy. If acrimony heate and paine doe too cruelly afflict the patient, you must make him enter into a bath, and presently after apply to the ulcers (if any such be) this following remedy. *℞ Olei ros. ʒiiij. ceruse ʒj. Litharg. ʒʒ cera nova, ʒvj. opij ʒj. fiat unguent. secundum artem.* Or else. *℞ thuris, myrrha, croci, an. ʒj. opij ʒj. fiat unguentum cum oleo rosarum & mucagine sem. psij, addendo vitellum unius ovi.* You may easily prosecute the residue of the cure according to the generall rules of Art.

Symptomes.

Sent. 37. sect. 6, opud.

A remedy for
the immoderate
flowing
of the Hæ-
morrhoides.

For suppress
Hæmorrhoids.

The first of these is the fact that the American Medical Association has been successful in securing the passage of the Federal Food and Drug Act, which is a landmark in the history of the regulation of the food and drug trade in this country. This act is a comprehensive one, covering the entire field of food and drug regulation, and it is a very important one, as it is the first time that the Federal Government has taken such a comprehensive action in this field. The second of these is the fact that the American Medical Association has been successful in securing the passage of the Federal Food and Drug Act, which is a landmark in the history of the regulation of the food and drug trade in this country. This act is a comprehensive one, covering the entire field of food and drug regulation, and it is a very important one, as it is the first time that the Federal Government has taken such a comprehensive action in this field.

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OF BANDAGES, OR, LIGATURES.

THE FOURTEENTH BOOK.

CHAP. I.

Of the differences of Bandages.



Bandages, wherewith we use to binde, doe much differ amongst themselves. But their differences (in Galens opinion) are chiefly drawne from sixe things; to wit, their matter, figure, length, breadth, making, and parts whereof they consist. Now the matter of Bandages is threefold; Membranous or of skinnes, which is accommodated peculiarly to the fractured grilles of the Nose; of Woollen, proper to inflamed parts, as those which have neede of no astringion; of Linnen, as when anie

Lib. de fasciis.

thing is to be fast bound: and of Linnen cloathes, some are made of flaxe, other some of hempe, as Hippocrates observes. But Bandages doe thus differ amongst themselves in structure, for that some thereof consist of that matter which is sufficiently close and strong of it selfe, such are the membranous; others are woven, as the linnen ones. But that Linnen is to bee made choice of for this use, and judged the best, not which is new and never formerly used, but that which hath already beene worne and served for other uses, that so the Bandages made thereof may be the more soft and pliable: yet must they bee of such strength, that they may not breake with stretching, and that they may straitly containe and repell the humour readie to flow downe, and so hinder it from entring the part. These, besides, must not bee hemmed nor stitched, must have no lace nor seame; for hems and seamies by their hardnesse presse into, and hurt the flesh that lyes under them. Lace, whether in the midst or edges of the rowler, makes the Ligature unequall. For the Member where it is touched with the Lace, as that which will not yeeld, is pressed more hard; but with the cloth in the middle more gently, as that which is more lax. Furthermore, these Ligatures must bee of cleane cloth, that if occasion bee, they may bee moystened or steeped in liquour appropriate to the disease, and that they may not corrupt, or make worse that liquour by their moistening therein. Now the Bandages which are made of Linnen cloathes must be cut long-waies, and not athwart, for so they shall keepe more firme and strong that which they binde, and besides, they will be alwaies alike, and not broader in one place than in another. But they thus differ in figure, for that some of them are rowled up, to which nothing must be sowed, for that they ought to be of a due length to binde up the member: others are cut or divided, which truly consist of one piece, but that divided in the end (such are usually taken to bind up the breasts) or else in the midst; others are sowed together, which consist of many branches sowed together, and ending in divers heads, and representing divers figures, such are the Bandages appropriated

Sec. 3. de chir. offic.

What cloth best for rowlers.

to the head. But they thus differ in length, for that some of them are shorter, others longer : so in like sort for breadth ; for some are broader, others narrower. Yet wee cannot certainly define nor set downe neither the length, nor breadth of Rowlers, for that they must be various, according to the different length and thickeſſe of the members or parts. Generally they ought both in length and breadth to fit the parts, whereunto they are used. For these parts require a binding different each from other, the head, the necke, shoulders, armes, breasts, groines, testicles, fundament, hips, thighs, legs, feet and toes. For the parts of Bandages, wee terme one part their bodie, another their heads. By the bodie we mean their due length & breadth, but their ends, whether they run long waies or a-crosse, wee according to Galen, terme them their heads.

Com. ad ſect. 22.
ſect. 2. de offici.
chir.

CHAP. II.

*Sheweth the indications and generall precepts of fitting of
Bandages and Ligatures.*

1. & 2. ſect.
lib. de fract.



Here are, in Hippocrates opinion, two indications of fitting Bandages or Ligatures ; the one whereof is taken from the part affected ; the other from the affect it ſelfe. From the part affected : ſo the legge, if you at any time binde it up, muſt bee bound long-waies, for if you binde it overthwart, the binding will looſen as ſoone as the patient beginnes to goe, and put forth his legge, for then the muſcles take upon them another figure. On the contrarie the Arme or Elbow muſt be bound up, bending in and turned to the breaſt, for otherwiſe at the firſt bending, if it bee bound when it is ſtretched forth, the Ligature will be ſlacked, for that (as we formerly ſaid) the figure of the muſcles is perverted. Now for this indication, let each one perſwade himſelfe thus much, That the part muſt be bound up in that figure, wherein wee would have it remaine.

We muſt al-
waies begin our
ligatures at the
bottome of a
ſinus.

Hipp. ſent. 4. ſect.
2. offici.

Initio 2. ſect. off.

Now for that indication which is drawne from the diſeaſe, if there be a hollow ulcer, ſinuouſ and cuniculouſ, caſting forth great ſtore of *ſanies*, then muſt you begin the ligature and binding from the bottome of the *ſinus*, and end at the oriſice of the ulcer ; and this precept muſt you alwayes obſerve, whether the *ſinus* be ſealed in the top, bottome, middle, or ſides of the ulcer. For thus the filth therein contained ſhall bee emptied and caſt forth, and the lippes of the ulcer too farre ſeparated, ſhall bee joyned together ; otherwiſe the contained filth will eate into all that lyes neare it, increaſe the ulcer, and make it uncurable by rotting the bones which lye under it with this acride *ſanies* or filth. But ſome Ligatures are remedies of themſelves, as thoſe which perſorme their duties of themſelves, and whereto the cure is committed, as are theſe which reſtore to their native unitie, thoſe parts which are diſ-joyned : others are not uſed for their owne ſakes, but only to ſerve to hold faſt ſuch medicines as have a curative facultie. This kinde of Ligature is eyther yet a doing, and is termed by Hippoc. *Deligatio operans* ; or elſe done and finiſhed, and is called, *Deligatio operata* : for the firſt, that the Ligature may be well made, it is fit that it be cloſe rowled together, and beſides, that the Surgeon hold it ſtiſſe and ſtrait in his hand, and not careleſſy, for ſo he ſhall binde up the member the better. Alſo he muſt in the binding obſerve, that the ends of the Rowler, and conſequently their faſtning may not fall to bee on the affected or grieved part ; for it is better that they come above or below, or elſe on the ſide : beſides alſo, he muſt have a ſpeciall care that there be no knot tyed upon the ſame place, or upon the region of the backe, buttocks, ſides, joynts, or backe part of the head, or to conclude in any other part upon which the Patient uſes to leane, reſt or lye. Alſo on that part where wee intend to ſow or faſten the Rowlers, you muſt double in their ends, that ſo the faſtning or ſuture may be the ſtronger, otherwiſe how cloſe ſoever they ſhall be wrapped or rowled about the member, yet will they not remaine firme, eſpecially if they be of a great breadth. For the ſecond kinde of Ligature, to wit, that which is already done and finiſhed ; the Surgeon, the performer thereof, muſt conſider to what end

it was done, and whether he hath performed it well and fitly, as also neatly and elegantly, to the satisfaction both of himselfe and the beholders. For it is the part of a skilfull Workeman everie where handsomely and rightly to performe that which may so be done.

Ligatures must not bee only lightly, but also neatly performed.

In fractures and luxations & all dislocations of bones, as also in wounds and contusions, you must beginne your bandage with two or three windings or wraps about upon the place, and that (if you can) more straitly than in other places, that so the set bones may be the better kept in their places, and that the humors, if anie be already fallen thither, may by this strait compression be pressed forth, as also to hinder and prevent the entrance in of any other which may bee readie to fall down. But in fractures (as those which never happen without contusion) the blood flowes, and is pressed forth of its proper vessels, as those which are violently battered and torne, which causes sugillation in the neighbouring flesh, which first lookes red, but afterwards black and blue by reason of the corruption of the blood poured forth under the skinne. Wherefore after these first windings, which I formerly mentioned, you must continue your rowling a great way from the broken or luxated part; he which does otherwise, will more and more draw the blood and humors into the affected part, and cause Impostumes, and other malignant accidents. Now the blood which flowes, goes but one way downwards, but that which is pressed is carried as it were in two pathes, to wit, from above downwards, and from below upwards. Yet you must have a care that you rather drive it backe into the body and bowels, than towards the extremities thereof, as being parts which are incapable of so much matter, and not furnished with sufficient strength to suffer that burden, which threatens to fall upon it, without danger and the increase of prenatall accidents. But when this masse and burden of humors is thrust backe into the bodie, it is then ruled and kept from doing harme by the strength and benefit of the faculties remaining in the bowels and the native heat.

Gal.com. ad sens.
25. sect. 1. lib. de
fract.

CHAP. III.

Of the three kindes of Bandages necessarie in fractures.



Two sorts of Ligatures are principally necessarie for the Surgeon, according to Hippocrates, by which the bones aswell broken as dislocated may be held firme when they are restored to their naturall place.

Sent. 24. sect. 2.
offic.

Of these some are called *Hypodesmides*, that is, Under-binders: others, *Epidesmi*, that is, Over-binders. There are sometimes but two under-binders used, but more commonly three. The first must first of all bee cast over the fracture, and wrapped there some three or foure times about, then the Surgeon must marke and observe the figure of the fracture; for as that shall be, so must he vary the manner of his binding. For the ligature must be drawne strait upon the side opposite to that whereto the luxation or fracture most inclines, that so the bone which stands forth may be forced into its seat, and so forced may be the more firmly there contained. Therefore if the right side be the more prominent or standing forth, thence must you beginne your ligation, and so draw your ligature to the left side. On the contrary, if the left side be more prominent, beginning there, you shall goe towards the opposite side in binding and rowling it. Here therefore would I require a Surgeon to be *Ambidexter*, (i.e.) having both his hands at command, that so he may the more exquisitly performe such variety of ligations. But let him in rowling, bend or move this first ligature upwards, that is, towards the bodie, for the former reasons. But neyther is this manner of ligation peculiar to fractures, but common to them with luxations: for, into what part soever the luxated bone flew, then when it is restored, that side must be bound the more loosely and gently whence it departed, and that on the contrary more hard unto which it went. Therefore the ligature must be drawne from the side whereunto the bone went; so that on this side it bee more loose and soft, and not straitly pressed with bouldsters or rowlers, that so it

Hypodesmides

may be more inclined to the side opposite to the luxation. If the ligation be otherwise performed, it succeeds not well, for the part is relaxed, and moved out of its naturall seat : wherefore there will be no small danger, lest the bone bee forced out againe, and removed from its place, whereinto it was restored by art and the hand. Which thing Hippocrates so much feared, that on the contrarie he willed that the set bone should be drawne somewhat more unto the part contrary to that whereunto it was driven by force, than the naturall and proper site thereof should require. But to returne to our former discourse of the three Ligatures : The first under-binder being put on, wee then take the second, with which wee in like sort begin at the fracture, but having wrapped it once or twice about there, for that, as we formerly said, wee must not force backe, and presse so much blood towards the extremities, as wee must doe towards the body and bowels. Wherefore this Ligature shall be drawne from above downe-wards, gently straining it to presse forth the blood contained in the wounded part : When by rowling you shall come to the end of that part, then you shall carry back againe that which remains thereof, to wit, upwards ; But otherwise you may take the third under-binder, wherewith you may beginne to rowle, whereas you left with the second, and you may carry it thus, rowling it from below upwards. These under-bindings thus finished, apply your boulders, after them your over or upper bindings, which are oft times two, but sometimes three. The first hath two heads, and is wrapped both from the right hand and the left, for the preservation of the first under-binder and the boulders, and restoring the muscles to their native figure. The two other which remaine, consist of one head, & the one of them must be rowled from below upwards, the other from above downwards, after such a manner, that they may bee directly contrary to the under-binders ; as if they were rowled from the right hand, then these must be from the left. Now this is the manner of Hippocrates his Ligation, which, for that it is now growne out of use, we must here set downe that which is in common use. They doe not at this time use any over-binders, but that which we termed the third under-binder serves our Surgeons in stead of the three forementioned over-binders. Wherefore they carry this third under-binder, wrapped from below upwards (as we formerly said) contrary to the first and second under-binder ; as if these begunne on the right side, this shall be rowled from the left, and shall end whereas the first under-binder ended. And you must not only draw it indifferently hard, but also make the spires and windings more rare. This third rowler is of this use in this manner of Ligation, that is, it restores the muscles to their native figure, from whence they were somewhat altered by the drawing and rowling of the two former Ligatures. But you must alwaies have regard, that you observe that measure in wrapping your Ligatures, which reason, with the sense of the patient, and ease in suffering, prescribes ; having regard that the tumor become not inflamed. Also the habit of the body ought to prescribe a measure in Ligation : for tender bodies cannot away with so hard binding as hard. Verily, in fractures and luxations, the humors by too strait binding are pressed into the extreme parts of the body ; whence grievous and oft times enormous Oedema's proccede : for healing whereof the Ligature must bee loosed, and then the tumified parts pressed by a new rowling, which must bee performed from below upwards, and so, by forcing the matter of the Tumor thither, it may be helped ; for there is no other hope or way to drive the humor backe againe. He which doth this, forsakes the proper cure of the disease, so to resist the symptome, which the Surgeon shall never refuse to doe, as often as any necessarie cause shall require it. For this cause Hippocrates bids, that the Bandages bee loosed everie three dayes, and then to foment the part with hote water, that so the humors, which (drawne thither by the vehemency of paine) have settled in the part, may be dissolved and disperfed, and itching and other such like symptomes prevented. The feare of all accidents being past, let the Ligation bee sooner or later loosed, and more slacked than it formerly was accustomed ; that so the blood and laudible matter, wherof a *Callus* may ensue, may flow more freely to the affected part.

When the third
under-binder
is necessarie.
Epidemi.

The manner of
binding now
in use.

What meane to
be observed in
wrapping the
Ligatures.

Why Hippoc.
bids to loose
the Ligatures
every third day.

C H A P. IIII.

of the binding up of Fractures associated with a wound.

IT sometimes happens, that a Fracture is associated by a wound, and yet for all this it is fit to binde the part with a Ligature, otherwise there will be no small danger of swelling, inflammation, and other ill accidents, by reason of the too plentiful afflux of humors from the neighbouring parts. But it is not fit to endeavour to use that kinde of binding which is performed with manie circumvolutions or wrappings about. For, seeing the wound must bee dressed everie day, the part must each day necessarily be stirred, and the Ligature, consisting of so many windings, loosed; which thing will cause paine, and consequently hinder the knitting and uniting which is performed by rest. Therefore this kinde of binding may be performed by one onely rowling about the wound, and that with a rowler which consists of a twice or thrice doubled cloth, made in manner of a boulder, and sewed with as much conveniencie as you can, that it may be so large as to encompassse and cover all the wound, for these reasons; which shall bee delivered at large in our Treatise of Fractures. But if the wound runne long-ways, let the boulders and splints be applyed to the sides of the wound, that so the lipps of the wound may bee pressed together, and the contained filth pressed forth. But if it be made over-thwart, we must abstaine from boulders and splints: for that, in Galens opinion, they would dilate the wound, and the purulent matter would be pressed out, and cast back into the wound.

*How to binde
up a Fracture
with a wound.*

*Ad sent. 12. secta
de fract.*

C H A P. V.

Certaine common precepts of the binding up of Fractures and Luxations.

IN everie Fracture and Luxation, the depressed, hollow and extenuated parts, such as are neere unto the joynts, ought to be filled up with boulders, or cloaths put about them, so to make the part equall, that so they may be equally and on every side pressed by the splints, and the bones more firmly contained in their seates. So when the knee is bound up, you must fill the ham or that cavity which is there, that so the ligation may be the better and speedilier performed. The same must be done under the armpits, above the heele, in the arme neer the wrest, and, to conclude, in all other parts which have a conspicuous inequality by reason of some manifest cavities. When you have finished your binding, then enquire of the patient, whether the member seeme not to be bound too strait. For if he say, that he is unable to endure it so hard bound, then must the binding be somewhat slackened. For, too strait binding causes paine, heate, defluxion, a gangrene, and lastly, a sphacell or mortification: but too loose is unprofitable, for that it doth not contain the parts in that state we desire. It is a signe of a just ligation that is neyther too strait nor too loose, if the ensuing day the part be swolne with an oedematous tumor, caused by the blood pressed forth of the broken place; but of too strait ligation, if the part be hard swolne; and of too loose, if it bee no whit swolne, as that which hath pressed no blood out of the affected part. Now if a hard tumor, caused by too strait binding, trouble the patient, it must presently bee loosed, for feare of more grievous symptomes, and the part must be fomented with warme *Hydraeum*, and another indifferent, yea verily, more loose ligation must be made in stead thereof, as long as the paine and inflammation shall continue; in which time and for which cause, you shall lay nothing upon the part which is any thing burdensome. When the patient beginnes to recover, for three or foure dayes space, especially if you find him of a more compact habit and a strong man, the ligation must be kept firme and not loosed. If on the third day, and so untill the seventh, the spires or windings

*Hipp. sent. 37. &
38. secta. de
fract.*

*The signes of
too strait and
loose binding
up.*

Why we must
make more
strait ligation
on the broken
part.

be found more loose, and the part affected more slender; then wee must judge it to be for the better. For hence you may gather, that there is an expression and digestion of the humors, causing the tumor made by force of the ligation. Verily, broken bones fitly bound up, are better set, and more firmly agglutinated, which is the cause, why in the place of the fracture the ligation must bee made the straiter, in other places more loosely. If the fractured bone stand forth in any part, it must there be more straitly pressed with boulders and splints. To conclude, the seventh day being past, we must binde the part more straitly than before: for that then inflammation, paine, and the like accidents, are not to bee feared. But these things which we have hitherto spoken of the three kindes of Ligatures, cannot take place in each fractured part of the body, as in the chaps, collar-bones, head, nose, ribs. For, seeing such parts are not round and long, a Ligature cannot be wrapped about them, as it may on the armes, thighes, and legges, but only bee put on their outsides.

CHAP. VI.

The uses for which Ligatures serve.

The first benefit
of Ligatures.



Y that which wee have formerly delivered, you may understand that Ligatures are of use to restore those things which are separated and moved forth of their places, and joyne together those which gape; as in fractures, wounds, contusions, sinewous ulcers, and other like affects against nature, in which the solution of continuities stands in neede of

The second.

the helpe of Bandages, for the reparation thereof. Besides also, by the helpe of Bandages these things are kept asunder or separated, which otherwise would grow together, against nature; as in Burns, wherein the fingers and the hams would mutually grow together; as also the arme-pits to the chests, the chin to the breast, unless they be hindered by due Ligation. Bandages doe also conduce to refresh emaciated parts: wherefore if the right legge waste for want of nourishment, the left legge, beginning at the foote, may bee conveniently rowled up even to the groine.

The third.

If the right arme consume, binde the left with a strait Ligature, beginning at the hand, and ending at the arme-pit. For thus a great portion of blood from the bound-up part is sent back into the *VENA CAVA*, from whence it regurgitates into the almost emptie vessels of the emaciated part. But I would have the sound part to bee so bound, that thereby it become not painefull; for a dolorifick ligation causes a greater attraction of blood and spirits, as also exercise: wherefore I would have it during that time to bee at rest, and keep holy-day. Ligatures also conduce to the stopping of bleedings: which you may perceive by this, that when you open a veine with your launcet, the blood is presently stayed, laying on a boulder and making a ligature. Also Ligatures are usefull for women presently after their delivery;

The fourth.

The fifth.

for their womb being bound about with Ligatures, the blood wherewith their womb was too much moistened, is expelled, the strength of the expulsive facultie being by this means stirred up to the expulsion thereof: and it also hinders the empty wombe from being swolne up with winde, which otherwise would presently enter thereinto. This same Ligature is a helpe to such as are with childe, for the more easie carrying of their burden; especially those whose Childe lyes so farre down-wards, that lying as it were in the den of the hippe, it hangs betweene the thighes, and so hinders the free going of the mother. Therefore the woman with childe is not only eased by this binding of her wombe with this Ligature, which is commonly termed, the navill Ligature; but also, her childe being held up higher in her wombe, she hath freer and more liberty to walke. Ligatures are in like sort good for revulsion and derivation: as also for holding of medicines which are layd

The sixth.

The seventh.

to a part, as the necke, breast or belly. Lastly, there is a triple use of Ligatures in amputation of members, as armes and legges. The first to draw and hold up-wards the skinned and muscles lying under it, that the operation being performed, they

The eighth, the
particular use of
ligatures in the
amputation of
members.

they

they may, by their falling downe againe, cover the ends of the cut-off bones; and so by that meanes helpe forwards the agglutination and cicatrization; and when it is healed up, cause the lame member to move more freely, and with lesse paine; and also to performe the former actions, this, as it were, cushion or boulster of muscous flesh lying thereunder. The second is, they hinder the bleeding by pressing together the veines and arteries. The third is, they by strait binding intercept the free passage of the animall spirits, and so deprive the part which lyes thereunder of the sense of feeling, by making it, as it were, stupid or num.

CHAP. VII.

Of Boulsters or Compresses.

Boulsters have a double use; the first is to fill up the cavities and those parts which are not of an equall thickeesse to their ends. Wee have examples of cavities in the Arme-pits, Clavicles, Hams & Groines; and of parts which grow small towards their ends, in the armes towards the wrists, in the legges towards the feet, in the thighes towards the knees. Therefore you must fill these parts with bouldsters and linnen cloathes, that so they may be all of one bignesse to their ends. The first use of Boulsters.

The second use of bouldsters, is to defend and preserve the first two or three Rowlers or Under-binders, the which we sayd before must be applyed immediately to the fractured part. Boulsters, according to this twofold use, differ amongst themselves, for that when they are used in the first mentioned kind, they must be applied athwart; but when in the latter, long-wayes or down-right. The second use of them.

You may also use Boulsters, lest the too strait binding of the Ligatures cause paine and trouble to the new set bones. A three or foure times doubled cloth will serve for the thickeesse of your Boulsters, but the length and breadth must be more or lesse, according to the condition of the parts and disease for which they must be applyed. The third use of them.

CHAP. VIII.

Of the use of Splints, Junks, and Cafes.

Having delivered the uses of Ligatures and Boulsters, it remaines that wee say somewhat of the other things, which serve to hold the bones in their places; as Splints, Junks, Cafes, and such other like. Splints are made and composed of past bord, of thin splinters of wood, of leather, such as shoo-soales are made with; of the rindes of trees, or plates of Latin, or lead, and such other like, which have a gentle and yeelding stiffe-nesse; yet would I have them made as light as may bee, lest they by their weight become troublesome to the affected part. But for their length, breadth, and number, let them be fitted agreeable to the part whereto they must bee used. Let also their figure be straight or crooked according to the condition of the member whereto they must be applyed. You must have a speciall care, that they runne not so farre as the swellings out, or eminencies of the bones; as the ancles, knees, elbowes, and the like, lest they hurt them by their pressure: also you must have a care, that they be smaller at their ends, and thicker in their middles, whereas they lye upon the broken bone. The use of splints is, to hold fast and firme, that they may stir no way the broken and luxated bones, after they bee set and restored to their places. That they performe this use, it is fit there be no thicke bouldsters under them, nor over many rowlers; for so through so thick a space, they would not so straitly presse the part. Junks are made of stickes the bignesse of ones finger, wrapped about with rushes, and then with linnen cloth: they are principally used in fractures The matter of Splints.
Their use.
What Junks are.
of

The matter and
use of Cases.

Glossocomium,
a generall name
for such things.

of the thighes and legges. Cases are made of plates of Latin, or else of some light wood; their use is, to containe the bones in their due figure, when the patient is to be carried out of one bed or chamber into another, or else hath neede to goe to stoole: lastly, if wee must rest somewhat more strongly upon the broken or luxated members, these Cases will hinder the bones from stirring or flying out on the right side or left, above or below, we sleeping or waking, being willing or unwilling, and in like sort lest being not as yet well knit, or more loosely bound up for feare of paine, inflammation, or a gangrene, they hang downe, fall, or fly in sunder by reason of the inequalities of the bed. Such Cases, Junkes, and the like, which serve for restoring and fast holding of broken and luxated bones, we may, according to Hippocrates his minde, call them in generall *Glossocomia*. All which things, the yong Surgeon, which is not as yet exercised in the workes of Art, can scarce tell what they are. But in the meane time, whilst that hee may come to bee exercised therein, or see others performe these operations, I, as plainly as possibly I could, have in words given him their portraiture or shape.

The end of the fourteenth Booke.



OF



OF FRACTURES.

THE FIFTEENTH BOOKE.

CHAP. I.

What a Fracture is, and what the differences thereof are.



Fracture, in Galens opinion, is the solution of continuitie in a bone, which by the Greeks is called *Catagma*. There are many sorts of hurting or offending the bones : as the drawing them a-sunder, luxation, or putting them out of joynt ; their unnaturall growing together, their cutting or dividing a-sunder ; contusion, abscesse, putrefaction, rottennesse, laying bare the *periostium* being violated or lost ; and lastly, that whereof we now treat, a Fracture. Again, the varieties of Fractures are almost infinite. For one is complete and perfect, another imperfect ; one runnes long-wise, another transverse, another oblique ; one while it is broken into great peeces, another while into little and small scales, which have eyther a blunt, or else a sharpe end, and pricke the adjacent bodies of the muscles, nerves, veins or arteries. It somtimes happens, that the bone is not broken into splinters, that is, long-wayes, but together, and at once into two peeces overthwart, which Fracture is called *Raphanedon*, that is, after the maner of a Raddish. Lib. 6. method.

A Fracture is made *Caryedon*, or like a nut, when as the bone flies into many small peeces, severed each from other, as when a Nut is broken with a hammer or mallet upon an Anvile : Which fracture is also termed *Alphitidon*, by reason of the resemblance it hath to meale or floure ; and such is often seene in fractures made by bullets, shot out of guns and such fiery engines. Contrary to these are those fractures which are called *Schidacidon*, as rent into splinters, or after the manner of a boord or peece of timber, that is, right-downe, and alongst the bone : and these fractures are eyther apparent to the eye, or else not apparent, and therefore called *Capillarie*, being so small, as that they cannot be perceived by the eye, unless you put inke upon them, and then shave them with your Scrapers. Sometimes the bone is only pressed downe by the stroke, sometimes on the contrarie it flies up, as if it were vaulted. They call it attrition, when the bone is broken into many small fragments, and as it were scales or chips. The fragments of fractured bones are sometimes smooth and polished, otherwhiles unequall, and as it were sharpe and rough with little teeth, or prickles. Some fractures touch onely the surface of the bone, fetching off only a scale ; other some change not the site of fractured bones, but only cleaves them length-waies, without the plucking away of any fragment ; other some penetrate even to their marrow. What it is for a boneto be broken *Raphanedon*.
What *Caryedon*, or *Alphitidon*.
What *Schidacidon*.

Furthermore some Fractures are simple and alone by themselves ; other some are accompanied with a troop of other affects and symptomes, as a wound, hæmorrhage, inflammation, gangrene, and the like. Hereunto you may also adde the differences

The causes of fractures.

rences drawne from the parts which the Fractures possesse; as from the head, ribs, limbs, joynts, and other members of the bodie. Adde also these which are taken from the habit of bodies, aged, young, full of ill humors, well tempered; almost all which have their proper and peculiar indications for curing. Now the causes of Fractures, are the too violent assaults or stroaks of all externall things, which may cut, bruise, breake, or shake: in this number of causes may also be reckoned fals from high places, and infinite other things, which would be long and tedious to reckon up.

CHAP. II.

Of the signes of a Fracture.

The first signe of a broken bone.



Another.

A third.

WE may know by evident signes that a bone is broken: the first whereof, and most certaine, is, when by handling the part which we suspect to be broken, wee feele peeces of the bone severed asunder, and heare a certaine crackling of these peeces under our hands, caused by the attrition of the shattered bones. Another signe is taken from the impotencie of the part, which chiefly bewrayes its selfe, when both the bones, the legge, and brace-bones, the ell and wand are broken. For if onely the brace-bone or wand be broken, the Patient may goe on his legge, and stirre his arme: for the brace-bone serves for the sustaining of the muscles, and not of the bodie, as the legge bone doth. The third signe is drawne from the figure of the part changed besides nature: for it is there hollow, from whence the bone is flowne or gone, but gibbous or bunching out whither it is runne. Great paine in the interim torments the patient by reason of the wronged *periostium*, and that membrane which involves the marrow and the sympathie of the adjacent parts which are compressed or pricked.

CHAP. III.

Of Prognosticks to be made in Fractures.



Why bones are more brittle in frostie weather.

Why the solution of continuity in bones is not so easily repaired.
Gal. in arte par.

WE must prognosticate in Fractures, whether they are to end in the destruction or welfare of the patient; or whether their cure shall be long or short, easie, or else difficult and dangerous; and lastly, what accidents and symptomes may happen thereupon. Hee shall easily attaine to the knowledge of all these things, who is not onely well seene in the anatomicall description of the bones, but also in the temper, composition and complexion of the whole bodie. Wherefore in the first place, I thinke good to admonish the Surgeon of this, that in winter when all is stiffe with cold, by a little fall, or some such sleight occasion, the bones may be quickly and readily broken. For then the bones, being dried by the drinesse of the ayre encompassing us, become more brittle; which everie one of the Vulgar usually observe to happen both in waxen and tallow candles: but when the season is moist, the bones are also more moist, and therefore more flexible and yeelding to the violence of the obvious and offending bodie. Wherefore also you may gather this to the framing of your Prognosticks, That bones by reason of their naturall drinesse are not so easily agglutinated and consolidated as flesh; though in Children, according to Galen, by reason of the abundance of their humiditie, the lost substance may bee repaired, according (as they terme it) to the first intencion, that is, by restoring of the same kinde of substance or matter. But in others, about the Fractures a certaine hard substance usually concreats, of that nourishment of the broken bone which abounds, which glues together the fragments thereof, being fitly put together. This substance is then termed a *Callus*, and it is so hardened in time, that the bone thereafter in the broken

broken part is seene to be more firme and hard than it is in any other: therefore that usuall saying in Physicke is not without reason; That rest is necessarie for the uniting of broken bones. For the *Callus* is easily dissolved, if they bee moved before their perfect and solid agglutination. The matter of a *Callus* ought to be indifferent and laudible in quantitie and qualitie, even as blood which flowes for the regeneration of the lost flesh in wounds. It is fit, that there may be sufficient matter for such a *Callus*, that the part have a laudible temper, otherwise there either will be no *Callus*, or certainly it wil grow more slowly. Fractures are far more easily repaired in yong bodies than in old: for in these there is plentie of the primigenious and radicall moisture, that is laudably holding and glutinous; and in the other there is store of watrish and excrementitious. By this you may easily conjecture, that you cannot certainly set downe a time necessarie for the generating a *Callus*: for in some it happens later, in some sooner: the cause of which varietie is also to be referred to the constitution of the yeare and region, the temper and diet of the Patient, and manner of Ligation. For, those Patients whose powers are weake, and blood watrish and thin, in these the generation of a *Callus* uses to be more slow: On the contrarie, strong powers hasten to agglutinate the bones, if there be plentie of grosse and viscusous matter; whereby it comesto passe, that meats of grosser nutriment are to be used, and medicines applyed which may helpe forwards the endeavour of nature, as we shall declare hereafter. When the bones are broken neare unto the joynts, the motion afterwards uses to be more difficult, especially if the *Callus*, which is substituted, be somewhat thicke and bunching forth. But if, together with the violence and force of the Fracture, the joynts shall bee broken and bruised, the motion will not only bee lost, but the life brought in danger, by reason of the greatnesse of the inflammation, which usually happens in such affects, and the excesse of paine in a tendinous body. These fractures wherein both the bones of the arme or legge are broken, are more difficult to cure, than those which happen but to one of them. For they are handled & kept in their places with more difficulty, because that which remaines whole, serves the other for a rest or stay to which it may leane. Moreover, there is longer time required to substitute a *Callus* to a great bone, than to a little one. Againe these bones which are more rare and spongie, are sooner glued together by the interposition of a *Callus*, than these which are dense and solid. A *Callus* sooner growes in sanguine, than in cholerick bodies. But broken bones cannot be so happily agglutinated, nor restored in any body, but that alwaies some asperity or unequal protuberancie may bee seene on that part where the *Callus* is generated. Wherefore the Surgeon ought to make artificiall Ligations, that the *Callus* may not stand out too far, nor sinke downe too low. That Fracture is least troublesome which is simple; on the contrarie, that is more troublesome which is made into splinters; but that is most troublesome and worst of all which is in small and sharp fragments, because there is danger of convulsion by pricking a nerve, or the *periostrum*. Sometimes the fragments of a broken bone keep themselves in their due place: they also oft times fly forth thereof, so that one of them gets above another; which when it happens, you may perceive an inequality by the depression of the one part and the bunching forth of the other, as also paine by the pricking: besides also the member is made shorter than it was, and than the sound member on the opposite side is, and more swolne by the contraction of the muscles towards their originall. Wherefore when a bone is broken, if you perceive anie thing so depressed, presently putting your hand on both sides above and below, stretch forth the bone as forcibly as you can; for otherwise, the muscles and nerves, stretched and contracted, will never of their owne accord suffer the bones to be restored to their proper seat and themselves. This extension must bee performed in the first dayes, for afterwards there will happen inflammation: which being present, it is dangerous to draw the nerves and tendons too violently; for hence would ensue an impostume, convulsion, gangrene and mortification. Therefore Hippocrates forbids you to defer such extension untill the third, or fourth day. Fractures are thought dangerous, whose fragments are great, and fly out, especially in these bones which are filled with marrow on the inside. When broken or dislocated bones cannot be

restored

Why bones sooner knit in yong bodies.

Meats of grosse and tough nutriment conduce to the generation of a *Callus*.

Fractures at joynts dangerous.

Hipp sect. 8. & 19. sect. i. de fracturis.

Ligations conduce to the handsonnes of a *Callus*.

Extension must presently bee made after the bone is broken.

Sent. 36. sect. 3. de fract.

In inflammations thereto-ring of the bone must not be attempted.

restored to themselves and their naturall place, the part waists for want of nourishment; both for that the naturall site of the veines, arteries and nerves is perverted, as also because the part it selfe lyes immoveable, or scarce moveable: whereby it commeth to passe, that the spirits doe not freely flow thereto, as neyther the nutritive juice commeth thither in sufficient plentie. When the dislocated or broken member is troubled with any great inflammation, it is doubtfull whether or no a convulsion will happen, if wee attempt to restore it, or the parts thereof to their seat: therefore it is better, if it may bee done, to deferre the reducing thereof so long, untill the humor which possesses the part be dissolved, the tumor abated, and the bitteresse of paine mitigated.

CHAP. IV.

The generall cure of broken and dislocated bones.

Three things to be performed in curing broken and dislocated bones.



O cure a broken and dislocated bone, is to restore it to its former figure and site. For the performance whereof, the Surgeon must propose three things to himselfe: The first is, to restore the bone to its place: The second is, that he containe or stay it being so restored: The third is, that he hinder the increase of malignant symptomes and accidents; or else if they doe happen, that then he temper and correct their present malignitie. Such accidents are paine, inflammation, a feaver, abscesse, gangrene and sphacell. For the first intention, you may easily restore a broken or dislocated bone, if presently, as soon as the mischance is got, or else the same day, you endeavour to restore it: for the bitteresse of paine or inflammation, which may trouble the patient, is not as yet verie great, neyther is the contraction of the muscles upwards as yet very much or stubborne. Therefore first of all, the Patient with his whole bodie, but especially with the broken or dislocated part, as also the Surgeon, must bee in some place which hath good and sufficient light. Then let trusty and skilfull attendants be there, good ligatures, and also, if need so require, good engines. His friends which are present, let them see and hold their peace, neyther say, nor do any thing which may hinder the Worke of the Surgeon. Then putting one hand above, that is, towards the center of the body, and the other below, as neare as hee can to the part affected, let him stretch forth the member: for if you lay your hand any distance from the part affected, you wil hurt the sound part by too much compression, neyther will you much avayle your selfe by stretching it at such a distance. But if you only endeavour below with your hand or ligature, assisting to make extension thereof, it will be dangerous if there bee nothing above which may withstand or hold, lest that you draw the whole bodie to you. This being done, according as I have delivered, it is fit the Surgeon make a right or straight extension of the part affected: for when the bone is eyther broken or out of joynt, there is a contraction of the muscles towards their originall, and consequently of the bones by them, as it is observed by Galen. Wherefore it is impossible to restore the bones to their former seat, without the extension of the muscles. But the part being thus extended, the broken bones will sooner and more easily be restored to their former seate. Which being restored, you shall presently with your hand presse it downe, if there be any thing that bunches or stands out. And lastly, you shall binde it up, by applying bouldsters and splints as shall bee fit. But if the bone bee dislocated or forth of joynt, then presently after the extension thereof, it will be requisite to bend it somewhat about, and so to draw it in. The Surgeon is sometimes forced to use engines for this worke, especially if the luxation be inveterate, if the broken or luxated bones be great; and that in strong and rustick bodies, and such as have large joynts: for that then there is need of greater strength, than is in the hand of the Surgeon alone. For, by how much the muscles of the Patient are the stronger, by so much will they bee contracted more powerfully upwards towards their originals. Yet have a care that you extend them not too violently, lest by rending and breaking asunder the muscles and nerves, you cause the forementioned symptomes, paine, convulsion,

How to put the bones in their places.

Hipp. sent. 60. sect. 2. de fract.

Ad sent. 1. sect. 1. de fract.

When instruments or engines are necessary.

vulsion, a palse and gangrene : all which sooner happen to strong and aged bodies, than to children, eunuches, women, youthes, and generally all moist bodies, for that they are lesse hurt by violent extension and pulling, by reason of their native and much humiditie and softnesse. For thus skins of leather, moistened with any liquor, are easily retched and drawn out as one pleaseth: but such as are dry & hard, being lesse tractable, will sooner rend and teare, than stretch further out. Therefore the Surgeon shall use a meane in extending and drawing forth of members, as shall be most agreeable to the habits of the bodies. You may know the bone is set, and the setting performed as is fit, if the paine be asswaged ; to wit, the fibres of the muscles, and the other parts being restored to their former site, and all compression, which the bones moved out of their places have made, being taken away ; if, to your feeling there bee nothing bunching out, nor rugged, but the surface of the member remaine smooth and equall ; and lastly, if the broken or dislocated member compares with its opposite in the compofure of the joynts, as the knees and ancles answer justly and equally in length and thicknesse. For which purpose it must not suffice the Surgeon to view it once, but even as often as he shall dresse it. For it may happen, that the bone which is well set, may by some chance, as by the Patients unconsiderate turning himselfe in his bed, or as it were a convulsive twitching of the members or joynts whilest he sleepe, the muscles of their owne accord contracting themselves towards their originals, that the member may againe fall out ; and it will give manifest signes thereof by renewing the paine, by pressing or pricking the adjacent bodies : which paine will not cease, before it bee restored to its place: and hereof the Surgeon ought to have diligent care. For if, whilest the *Callus* is in growing, one bone ride over another, the bone it selfe will afterwards be so much the shorter, and consequently the whole member ; so that if this error shall happen in a broken legge, the Patient will halt ever after, to his great grieve, and the Surgeons shame. Wherefore the Patient shall take heed, as much as in him lyes, that he stirre not the broken member, before that the *Callus* be hardened. Such diligent care needes not bee had in dislocations. For these once set, and artificially bound up, doe not afterwards so easily fall forth as broken bones.

What bodies are sooner hurt by violent extension.

Signes of a bone well set.

Causes and signes of the relapse of a set bone.

The second scope is, that the bones which shall be restored may bee firmly kept in their state and place. That shall be done by Bandages ; as ligatures, boulders, and other things, whereof hereafter we shall make particular mention. Hither tend proper and fit medicines, to wit, applying of oyle of Roses with the whites of Egges, and the like repelling things ; and then resolving medicines, as the present necessity shall require. It will be convenient, to moisten your rowlers and boulders in oxybate for this purpose, or else in Rose vinegar, if the Fracture be simple, or with red wine, or the like liquor warme (in Galens opinion) if a wound bee joynted to the fracture ; and it will be fit to moisten fractures oftner in Summer: For so the part is strengthened, the defluxion being repelled, whereby the inflammation and paine are hindred. You must desist from humecting and watering the part when the symptoms are past, lest you retard the generating of a *Callus* ; for which you must labour by these meanes which wee shall hereafter declare. To this purpose also conduces the rest and lying of the part in its proper figure and site accustomed in health, that so it may the longer remaine in the same place unstirred. Besides also, it is expedient then only to dresse the part, when it is needfull, & with those things that are requisite, shunning, as much as may be, inflammation and paine. That figure is thought the best, which is the middle, that is, which containes the muscles in their site, which is without paine ; so that the Patient may long endure it without labour or trouble. All these thing being performed, the Patient must be asked, Whether the member be bound up too strait ? If hee answer, No, (unlesse peradventure a little upon the fracture or luxation, for there it is fit it should bee more straitly bound) then may you know that the binding is moderate. And this same first ligation is to bee kept in fractures without loosing for three or foure dayes space, unlesse peradventure paine urge you to the contrary. In dislocations the same binding may bee kept for seven or eight daies, unlesse by chance some symptome may happen, which may force us to open it before that time : for

Ad sent. 21. sect. 1. de fract.

What the middle figure is, and why best.

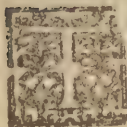
Fit time for loosing of Ligatures in fractures and dislocations.

the Surgeon must with all his art have a care to prohibite the happening of evill accidents and symptomes, which, how he may bring to passe, shall bee declared in the following Chapter.

CHAP. V.

By what meanes you may performe the third intention in curing fractures and dislocations, which is, the binding and correction of accidents and symptomes.

Four choice
meanes to hin-
der accidents.



The causes and
differences of
itching.

*Ad sent. 4. sect.
1. de fract.*

Remedies a-
gainst the itch-
ing.

*Hipp. sent. 46.
sect. 3. de fract.*

That we may attaine unto this third scope, it is requisite we handle as gently and without paine, as we may, the broken or dislocated member; we drive away the defluxion ready to fall downe upon the part by medicines, repelling the humour, and strengthening the part; wee, by appointing a good diet, hinder the begetting of excrements in the bodie, and divert them by purging and phlebotomie. But if these accidents be already present, we must cure them according to the kinde and nature of each of them: for they are various. Amongst which is reckoned itching, which in the beginning torments the Patient: this ariseth from a collection and suppression of subacride vapours, arising from the blood, and other humors under the skin. Whence a light biting, which causeth a simple itch, or else a more grievous and acride one, from whence (in Galens opinion) proceeds a painefull itching. Wherefore such matter, as the cause, being evacuated, all itching ceaseth. But this cannot easily and freely be evacuated and breathed out, because the pores of the part are shut up, and as it were oppressed with the burden of the emplaisters, boulders, and ligatures, which are put about the part. Hereunto may be added, that the part its selfe doth not so perfectly performe and enjoy its wonted faculcies and actions: by which it commeth to passe, that the heat thereof is more languide than may suffice to discusse the fuliginous matter there collected. Wherefore it will be convenient to loose the ligatures everie third day, that, as by loosing their ties, their sanious and fuliginous excrements, shut up under the skinne, may freely passe forth, lest in continuance they should fret and ulcerate it; as it happens to most of those who provide not for it by loosing their ligatures. Besides also, the part must bee long fomented with hote water alone, or else with a decoction of sage, chamomile, roses, and melilote made in wine and water: for long fomenting attenuates and evacuates, but shorter fils and mollifies, as it is delivered by Hippocrates. Also gentle frictions, performed with your hand, or a warme linnen cloath upwards, to the right side and left, and circularly to everie side, are good. But if the skinne be already risen into blisters, they must be cut, lest the matter contained thereunder may corrode and ulcerate the skinne: then must the skinne be annointed with some cooling and drying medicine; as, *Ung. album Camphoratum Rhasis, Desiccativum rubrum, unguentum rosatum sine aceto*; adding thereto the powder of a rotten poste, or prepared Tutia, or the like. Other accidents more grievous than these, doe often happen, but we will treat of them hereafter. But if the scales of the bone underneath bee quite severed from the whole, then must they be presently taken forth, especially if they prick the muscles: But if the bone be broken into splinters, and so prominent out of the wounded flesh as that it cannot be restored into its seat, it must be cut off with your cutting mallets, or parrats beake, as occasion shall offer its selfe. In the interim, you must have a care that the part enjoy perspiration, and by change of place and rising, now and then it may be as it were ventilated: also you must see that it be not over-burdened, neyther too strait bound, otherwise it will be apt to inflammation. Thus much concerning fractures and dislocations in generall: now we must descend to particulars, beginning with a fracture of the Nose.

CHAP. VI.

Of the Fracture of the Nose.

HHe Nose is gristly in its lower part, but bony in the upper. Wherefore it suffers no fracture in the gristly part (unless peradventure a *Sedes*) but only a depression, distortion or contusion. But a fracture often happens to the bony part, & so great a depression to the inner side, that unless it be provided for by diligent restoring it, the nose will become flat, or wrested aside, whence there will be difficulty of breathing. That this kinde of fracture may be restored, that bone which stands too farre out must be pressed downe; but that which is depressed, must be lifted up with a spatherne, or little sticke handsomely fashioned and wrapped about with cotten or a linnen ragge, so to avoyd paine. Therefore you shall hold the spatherne in one hand, and reduce and order it with the other. The bone being restored, directories or tents of a convenient bignesse shall be put into the nose; which tents shall be made of sponge, or flaxe, or a peece of a beasts or sheeps lungs. For these things are soft, and doe not onely hinder the bones of the Nose that they fall no more, but also lift them up higher. And then the Nose shall be in some sort stayed with boulders on each side, even untill the perfect agglutination of the bones, lest the figure and straitnesse should be vitiated and spoyled. I have oft times put golden, silver and leaden pipes into fractured noses, and fastned them with a thred to the Patients night cap, which, by one and the same means, kept the bones from being again depressed, gave the matter free passage forth, and nothing hindred the breathing. In the mean time we must see, that we do not presse the Nose with too strait binding, unless peradventure some other thing perswade; lest they become eyther too wide, too flat, or crooked. If any wound accompany the fracture, that shall be cured after the same manner, as the wounds of the head. The fracture restored, the following medicine, which hath a facultie to repell and repress the defluxion, to strengthen and keep the part in its due posture, and to dry up and waste the matter which hath already fallen downe, shall be applied to the Nose, and all the other dry parts.

Rx. *thuris, mastiches, boli armenia, sanguinis draconis. an. ʒss. aluminis rocha, resina pini. an. ʒij. pulveriscentur subtilissime: Or else, Rx. farina volatilis ʒss. aluminum ovorum quantum sufficit, incorporentur simul, & fiat medicamentum.* A fit astringent and drying medicine.

Neither shall you use any other art to cure the cartilagineous part of the nose being fractured. Wherefore Hippocrates termes that solution of continuitie that there happens, A fracture, as if it were in a bone; because hee could finde no other name more fitly to expresse it: for a gristle, next to a bone, is the hardest of all the parts of our bodie. A *Callus* uses to grow in fractured noses, unless something hinder within the space of twelve or fiftene dayes.

CHAP. VII.

Of the Fracture of the lower Jaw.

HHe lower Jaw runnes into two, as it were, horns or tops: the one whereof ends sharpe, and receives a tendon from the temporall muscle; the other ends blunt and round under the mammillarie prolesse, and it is there implanted in a small cavities; it is joyned together in the middle of the chin by *Symphysis*, and is marrowie within. The Fracture, which happens thereto, is restored by putting your fingers into the Patients mouth, and pressing them on the inside and outside, that so the fractured bones put together may be smoothed and united. But if they be broken wholly athwart, so that the bones lye over each other, extension must be made on both sides on contrary parts, upwards and downwards, whereby the bones may be composed and joy-

A description of the lower Jaw.

The manner of restoring a broken Jaw.

The description
of a fit ligature
for the under
Jaw.

In what time it
may be healed.

ned more easily to one another. The teeth in the meane while, if they be eyther shaken or removed out of their sockets, must be restored to their former places, and tyed with a gold or silver wyar, or else an ordinary threed, to the next firme teeth, untill such time as they shall be fastened, and the bones perfectly knit by a *Callus*. To which purpose the ordered fragments of the fractured bone shall bee stayed, by putting a splint on the outside, made of such leather as shoe soales are made, the midst thereof being divided at the Chin, and of such length and breadth as may serve the Jaw: then you shall make ligation with a ligature two fingers broad, and of such length as shall be sufficient, divided at both the ends, and cut long-waies in the midst thereof; that so it may engirt the chin on both sides. Then there will be foure heads of such a ligature so divided at the ends; the two lower whereof being brought to the crown of the head, shall bee there fastened and sowed to the Patients night-cap. The two upper drawne athwart shall likewise be sowed as artificially as may bee, to the cap in the nappe of the necke. It is a most certaine signe, that the Jaw is restored and well set, if the teeth fastened therein stand in their due ranke and order. The patient shall not lye downe upon his broken jaw, lest the fragments of the bones should againe fall out, and cause a greater defluxion. Unlesse inflammation, or some other grievous symptome, shall happen, it is strengthened with a *Callus* within twentie dayes; for that it is spongius, hollow, and full of marrow, especially in the midst thereof: yet sometimes, it heales more slowly, according as the temper of the patient is, which takes also place in other fractured bones. The agglutinating and repelling medicine, described in the former chapter, shall be used; as also others, as occasion shall offer it selfe. The Patient must be fed with liquid meats, which stand not in need of chewing, untill such time as the *Callus* shall grow hard, lest the scarce or ill-joynd fragments should fly insunder with the labour of chewing. Therefore shall hee bee nourished with water-grewell, ponadoes, cullasses, barley creames, gellies, brothes, reare eggcs, restorative liquors, and other things of the like nature.

CHAP. VIII.

Of the Fracture of the Clavicle or Collar-bone.

Hipp. sem. 63. sect.
I. de art.



How to restore
the fractured
Clavicle.
The first way.

The second
way.

The third way.

As the nature and kinde of the fractured Clavicle shall bee, so must the cure and restoring thereof bee performed. But howsoever this bone shall be broken, alwaies the end fastened to the shoulder and shoulder-blade, is lower than that which is joynd to the chest; for that the arme drawes it downe-wards. The collar-bone, if broken athwart, is more easily restored and healed, than if it be cloven long-waies. For, everie bone broken athwart doth more easily returne into its former state or seat, whiles you lift it up on this or that side with your fingers. But that which is broken *schidacidon*, or into splinters, or long-waies, is more difficultly joynd and united to the ends and fragments: for those peeces, which were set, will be plucked asunder, even by the least motion of the armes; and that which was knit with the shoulder, will fall downe to the lower part of the breast. The reason of which is, the Collar-bone is not moved of its selfe, but consents in motion with the arme. In restoring this or any other fracture, you must have a care that the bones ride not one over another, neyther be drawn nor depart too far in sunder: therefore it will be here convenient, that one servant draw the arme backwards, and another pull the shoulder towards him the contrarie way; for so there will be made, as I may so terme it, a counter-extension. While which is in doing, the Surgeon with his fingers shall restore the fracture, pressing downe that which stood up too high, and lifting up that which is pressed downe too low. Some, that they may more easily restore this kinde of fracture, put a clew of yarne under the Patients arme-pit; so to fill up the cavity thereof: then they forcibly presse the elbow to the ribs, and then force the bone into its former seat. But if it happen, that the ends of the broken bones shall bee so deprest,


depreſt, that they cannot be drawn upwards by the forementioned means: then muſt the Patient be layd with his backe, juſt betweene the ſhoulders, upon a pillow hard ſtuffed, or a tray turned with the bottome upwards, and covered with a rugge or ſome ſuch thing. Then the ſervant ſhall ſo long preſſe downe the Patients ſhoulders with his hands, untill the ends of the bones, lying hid and preſſed downe, ſhew out and ſhew themſelves. Which being done, the Surgeon may eaſily reſtore or ſet the fractured bone. But if the bone be broken ſo into ſplinters that it cannot bee reſtored, and any of the ſplinters pricke and wound the fleſh, and ſo cauſe difficultie of breathing, you then muſt cut the ſkinne even againſt them, and with your inſtrument liſt up all the depreſſed ſplinters, and cut off their ſharp points; ſo to prevent all deadly accidents, which thereupon may bee feared. If there be many fragments, they, after they are ſet, ſhall be covered with a knitting medicine made of wheat flour, frankincenſe, bole armenicke, *sanguis draconis*, *refina pini*, made into powder, and mixed with the whites of egges, putting upon it ſplints, covered with ſoft worne linnen raggs; covered over likewise with the ſame medicine, and then three boulters dipped in the ſame; two whereof ſhall be layd upon the ſides, but the third and thickeſt upon the prominent fracture, ſo to repreſſe it and hold it in. For thus the fragments ſhall not be able to ſtirre or liſt themſelves up further than they ſhould, eyther to the right ſide or left. Now theſe Boulters muſt be of a convenient thickneſſe and breadth, ſufficient to fill up the cavities which are above and below that bone. Then ſhall you make ſit ligation with a rowler, having a double head caſt croſſe-wiſe, of a hands breadth, and ſome two ells and a halfe long, more or leſſe, according to the Patients bodie. Now hee ſhall be ſo rowled up, as it may draw his arme ſomewhat backwards, and in the interim his arme-pits ſhall be filled with boulters, eſpecially that next the broken bone; for ſo the Patient may more eaſily ſuffer the binding. Alſo you ſhall wiſh the Patient, that he of himſelfe bend his arme backwards, and ſet his hand upon his hip, as the Countrey Clownes uſe to doe, when they play at leap-frogge. But how great diligence ſoever you uſe in curing this ſort of fracture, yet can it ſcarce be ſo performed, but that there will ſome deformity remaine in the part: for that a ligature cannot be rowled about the collar-bone, as it may about a legge or an arme. A *Callus* oft times growes on this bone, within the ſpace of twenty daies, becauſe it is rare and ſpongiouſ.

How to binde
up the fractured
clavicle.

It is a difficult
matter perfect-
ly to reſtore a
fractured cla-
vicle,

CHAP. IX.

Of the fracture of the ſhoulder-blade.

 He Greeks call that *Omoſclata*, which the Latines terme *Scapula*, or *Scapula patella*, that is, the ſhoulder-blade. It is faſtened on the backe to the ribs, nowle, the *Vertebra* of the cheſt and necke; but not by articulation, but only by the interpoſition of muſcles, of which wee have ſpoken in our Anatomie. But on the forepart it is articulated after the manner of other bones with the collar-bone, the ſhoulder, or arme-bone: for with its proceſſe, which repreſents a pricke or thorne, and by ſome, for that it is more long and prominent, is called *Acromion*, (that is, as you would ſay, the top or ſpire of the ſaid ſhoulder-blade) it receives the Collar-bone. Therefore ſome Anatomifts, according to Hippocrates as they ſuppoſe, call all this articulation of the Collar-bone with the hollowed proceſſe of the ſhoulder-blade, *Acromion*. There is another proceſſe of the ſaid Blade-bone, called *Cervix omoſclata*, or the necke of the ſhoulder-blade: this truly is very ſhort, but ending in a broad and ſinuuated head, provided for the receiving of the ſhoulder or arme-bone. Not farre from this proceſſe is another, called *Coracoïdes*, for that the end thereof is crooked like a Crowes beake. This keeps the ſhoulder bone in its place, and conduces to the ſtrength of that part. The ſhoulder-blade may be fractured in any part thereof, that is, eyther on the ridge, which runnes like a hill, alongſt the miſt thereof, for its ſafety, as wee ſee in the *Vertebra* of the backe. So alſo in the broader part thereof it may bee thruſt in and

An anatomical
deſcription of
the ſhoulder-
blade,

How many
waies the ſhoul-
der-blade may
be broken.

depreſt; and alſo in that articulation, whereby the top of the ſhoulder is knit to it. According to this variety of theſe fractured parts, the happening accidents are more grievous or gentle.

The cure.

Lib. de vuln.
Capitis.
A hiftorie.

Nature of its
owne accord
makes it ſelfe
way to caſt
forth ſtrange
bodies and
matters.
Why a fracture
in the joynt of
the ſhoulder
is deadly.

Wee know the ſpine or ridge of the Shoulder-blade to be broken, when a dolorifick inequality is perceived by touching or feeling it. But you may know, that the broader or thinner part thereof is depreſſed, if you feele a cavity, and a pricking paine moleſt the part, and if a numbneſſe trouble the arme, being ſtretched forth. The fragments, if they yet ſtick to their bone, and doe not pricke the fleſh, muſt be reſtored to their ſtate and place, and there kept with agglutinative medicines, and ſuch as generate a *Callus*, as alſo with boulters and rowlers fitted to the place. But if they doe not adhere to the bone, or pricke the fleſh lying under them, then muſt you make incision in the fleſh over againſt them, that ſo you may take them out with your Crowes beake. But although they ſtirre up and downe, yet if they ſtill adhere to the *periosteum* and ligaments, (if ſo be that they trouble not the muſcles by pricking them) then muſt they not bee taken forth: for I have oftner than once obſerved, that they have within ſome ſhort time after growne to the adjacent bones. But if they, being wholly ſeparated, doe not ſo much as adhere to the *periosteum*, then muſt they neceſſarily be plucked away; otherwiſe within ſome ſhort ſpace after, they will be driven forth by the ſtrength of nature, for that they participate not any more in life with the whole. For that which is quicke, ſaith Hippocrates, uſes to expell that which is dead farre from it. The truth whereof was maniſeſt in the Marques of Villars, who at the battell of Dreux was wounded in his ſhoulder with a piſtoll bullet, certaine ſplinters of the broken bone were plucked forth with the peeces of his harnelle, and of the leaden bullet; and within ſome ſhort ſpace after, the wound was cicatrized, and fully and perfectly healed. But more than ſeven yeares after, a deſluxion and inflammation ariſing in that place by reaſon of his labour in armes, and the heavineſſe of his armour at the battell of Mont-contour, the wound broke open againe; ſo that many ſhivers of the bone, with the reſidue of the leaden bullet, came forth of themſelves. But if the fracture ſhall happen in the necke of the ſhoulder blade or dearticulation of the ſhoulder, there is ſcarce any hope of recovery; as I have obſerved in Anthony of Burbon, King of Navarre; Francis of Lorraine, Duke of Guiſe; the Count Rhingrave Philibert, and many other in theſe late civill warrs. For there are many large veſſels about this dearticulation, to wit, the axillary veine and arterie, the nerves ariſing from the *Vertebra* of the necke, which are thence diſſeminated into all the muſcles of the arme. Beſides, alſo inflammation and putrefaction ariſing there are eaſily communicated by reaſon of their neighbour-hood to the heart and other principall parts, whence grievous ſymptomes, and oft times death it ſelfe, enſues.

CHAP. X.

Of the fracture and depreſſion of the Sternum, or Breast-bone.

Signes that the
Sternum is broken.

Signes that it
is depreſt.

The cure.



He *Sternum* is ſometimes broken, otherwiſe onely thruſt in without a fracture. The inequality perceivable by your feeling, ſhews a fracture, as alſo the going in with a thruſt with your finger, and the ſound or noiſe of the bones crackling under your fingers. But a maniſeſt cavity in the part, a cough, ſpitting of blood, and difficultie of breathing by compreſſion of the membrane inveſting the ribs and the lungs, argue the depreſſion thereof. For the reſtoring of this bone, whether broken or depreſt, the patient muſt be layd on his backe, with a cuſhion ſtuffed with tow or hay under the *vertebra* of the backe, as we ſet downe in the ſetting of the Collar-bone. Then a ſervant ſhall lye ſtrongly with both his hands on his ſhoulders, as if he would preſſe them downe, whiſt the Surgeon, in the meane time preſſing the ribs on each ſide, ſhall reſtore and ſet the bone with his hand; and then the formerly deſcribed medicines ſhall bee applyed for to hinder inflammation, and aſſwage paine; boulters ſhall bee fitted thereto, and

and a ligature shall bee made crosse-ways above the shoulders, but that not too strait, lest it hinder the Patients breathing. I by these meanes, at the appointment of Anthony of Burbon King of Navarre, cured Anthony Benand a Knight of the Order, who had his breast-plate bended and driven in, with an iron bullet shot out of a Field-Peece, as also his *sternum* together therewith, and he fell down as dead with the blow; he did spit blood for three months after I had set the bone: yet for all this he lives at this day in perfect health.

A historie.

CHAP. XI.

Of the fracture of the ribs.

THe true ribs, for that they are bonie, may be broken in any part of them. But the bastard ribs cannot be truly broken unlesse at the backe bone, because they are onely bonie in that part, but gristly on the foreside towards the breast-bone, wherefore there they can only be folded or crooked in. These which are subject to fractures, may be broken inwards and outwards. But oft times it comes to passe, that they are not absolutely broken, but cleft into splinters, and that sometimes inwards, but not outwards. Thus the fissure doth oft-times not exceede the middle substance of the rib; but sometimes it so breakes through it all, that the fragments and splinters do prick and wound the membrane, which invests and lines them on the inside, and then there is great danger. But when the fracture is simple without a wound, compression, puncture of the membrane, and lastly, without any other symptome, then the danger is lesse. Therefore Hippocrates wisheth, that these, who are thus affected, fill themselves more freely with meat; for that moderate repletion of the belly, is (as it were) a certaine prop or stay for the ribs, keeping them well in their place and state: which rule chiefly takes place in fractures of the bastard ribs. For such as have them broken, usually feele themselves better after, than before meat. For emptinesse of meat, or of the stomach, makes a suspension of the ribs, as not underpropped by the meat. Now that fracture which is outwardly, is farre more easie to heale, than that which is inwardly; for that this pricketh the membrane or *Pleura*, and causeth inflammation, which may easily end in an *Empyema*. Adde hereunto, that this is not so easily to be handled or dealt withall, as the other: whereby it commeth to passe, that it cannot be so easily restored; for that these things cannot bee so fully and freely performed in this kinde of fracture, which are necessary to the setting of the bone, as to draw it out, hold it and joine it together. It is therefore healed within twenty dayes, if nothing else hinder. The signes of fractured ribs are not obscure; for by feeling the grieved part with your fingers, you may easily perceive the fracture by the inequalitye of the bones, and their noyse or crackling, especially, if they bee quite broke asunder. But if a rib be broken on the inside, a pricking paine, far more grievous than in a *Pleurisie*, troubles the Patient; because the sharp splinters pricke the *Costall* membrane: whence great difficulty in breathing, a cough and spitting of blood ensue. For blood, flowing from the vessels broken by the violence of the thing causing the fracture, is (as it were) sucked up by the lungs, and so by a dry cough carried into the weazond, and at length spit out of the mouth. Some, to pull up the bone that is quite broken and deprest, apply a cupping glasse, and that is ill done: for there is caused greater attraction of humors, and excesse of paine by the pressure and contraction of the adjacent parts, by the cupping-glasse; wherefore Hippocrates also forbids it. Therefore it is better to endeavour to restore it after this following manner. Let the Patient lye upon his sound side, and let there be layd upon the fractured side an emplaister made of Turpentine, rosin, black pitch, wheat floure, mastick and aloes, and spread upon a strong and new cloath. When it hath sticke there some time, then plucke it suddenly with great violence from below upwards: for so the rib will follow together therewith, and bee plucked and drawne upwards. It is not sufficient to have done this once, but you must

In what place the short ribs may be broken.

Sent. 56. sect. 3. de art.

Why an internal fracture of the ribs is deadly.

The signes

The cause of spitting blood when the ribs are broken.

Sent. 51. sect. 3. de art. Paulus lib. 6. cap. 98. Avicen. 4. The cure.

must

A simple fracture may be cured onely by Surgerie.

must doe it often, untill such time as the Patient shall finde himselfe better, and to breathe more easily. There will be much more hope of restitution, if, whilst the Surgeon doe this diligently, the Patient forbear coughing, and hold his breath. Otherwise, if necessitie urge, as if sharpe splinters with most bitter tormenting paine pricke the Costall membrane overspred with many nerves, veines, and arteries, which run under the ribs, whence difficultie of breathing, spitting of blood, a cough and fever ensue; then the only way to deliver the Patient from danger of imminent death, is, to make incision on the part, where the rib is broken, that so laying it bare, you may discerne the pricking fragments, and take them out with your instrument, or else cut them off. And if you make a great wound by incision, then shall you sew it up, and cure it according to the common rules of curing wounds. Now Diet, Phlebotomie and Purgation, which (as Hippocrates saith) are not very needfull in a simple fracture, for that there are no symptomes, which may require such remedies; yet, they, by reason of the complicated symptomes, as a convulsion, feaver, *Empyema*, and the like, must here be prescribed, by the advice of the Physician which oversees the cure. A Cerate, and other remedies fitting the occasion, shall be applyed to the grieved part: no other ligatures can be used, than such as are fit to hold fast and stay the locall medicines. There is no other rule of site and lying, than such as is taken from the will and content of the Patient.

CHAP. XII.

Of certaine preternaturall affects which ensue upon broken ribs.



Any symptomes ensue upon fractured and contused ribs: but amongst the rest, there are two which are not common, whereof we will treat in this place. The first is, the inflation, or rising up of the contused flesh, which also ensues upon light affects of the bone, which have bin neglected at the beginning. But the flesh is not meerly puffed up of its selfe, but also with a certaine phlegmatick, glutinous and viscous humour gathering thereinto. The cause hereof is, the weaknesse of the digestive facultie of the part, occasioned by the stroake and distemper; which therefore cannot assimilate the nourishment flowing more plentifully than it was wont, eyther drawne thither by means of the pain, or sent thither by a blinde violence of nature, stirred thereto by a desire of its own preservation. Wherefore this halfe crude humor remaining there, raiseth much flatuling from its selfe, or else wrought upon by the weaker heat, it is resolved into cloudy vapours; whence it commeth to passe, that the flesh is swolne up in that place, and the skinne on the contrary growes soft, as if it were blowne up with a quill. Therefore laying your hand thereon, you may heare the noyse of the winde going forth thereof, and see a cavity left in the part, as it is usually seene in oedematous tumors. Unlesse you remedie this inflation, there will ensue an inflammation, fever, abscesse, difficulty of breathing; and lastly, that second kinde of affect, whereof we have determined to treat in this Chapter, to wit, the putrefaction, corruption, or blasting of the ribs. An abscesse, and the separation of the flesh from the bone, is the cause hereof: for hence it commeth to passe, that the bone, despoyled of its naturall and fleshly cloathing wherewith it was cherished, is easily offended by the touch of the entring ayre, which it never formerly felt, and so at length it becommeth (as it were) blasted: which when it happens, they spit up filth, and so fall into a consumption, and at length dye. To withstand all these inconveniencies, you must, as speedily as you can, restore the fractured bones by the formerly delivered meanes. And then this mucous tumor must be resolved by proper heating and discussing medicines, and kept downe by boulders and rowlers, that so the flesh may touch the bone, and cover it as it usually did. But the ligature shall not be made so strait, as to hinder the ribs from their wonted motion in expiration and inspiration. If the tumor degenerate into an Abscesse, it shalbe speedily opened,

left

The cause.

The signes.

The cure.

lest the matter, kept in too long, corrupt the bone which lyes under it, by the contagion of its putrefaction. The Ulcer being opened, the matter shall bee evacuated by putting a pipe into the ulcer; the end whereof shalbe bound about with a thred, lest it fall into the capacity of the chest, and that it may bee drawne forth at your pleasure.

C H A P. XIII.

*Of the fracture of the Vertebra, or Rack bones of the backe,
and of their processes.*

THe *Vertebra* are some-whiles broken, otherwhiles bruised, or strained on the inside, wherby it commeth to passe, that the membranes which invest the spinall marrow, as also the spinall marrow its selfe, are compressed and straitened, which cause many maligne accidents; which, whether they be curable or not, may be certainly foretold by their magnitude. Amongst these symptomes, are the stupidity, or numnesse and palsie of the armes, legges, fundament and bladder, which diminish, or else take away from them the facultie of sense and motion; so that their urine and excrements come from them against their wils and knowledge, or else are wholly supprest. Which when they happen (saith Hippocrates) you may fore-tell that death is at hand, by reason that the spinall marrow is hurt. Having made such a prognosticke, you may make an incision, so to take forth the splinters of the broken *vertebra*, which, driven in, presse the spinall marrow, and the nerves thereof. If you cannot doe this, at least you shall apply such medicines as may assuage paine, and hinder inflammation; and then the broken bones shall be restored to their places, and contained therein by those meanes which we shall mention when we come to treat of the luxation of the spine. But if that the processes onely of the *vertebra* be broken, the fragments shall be put in their places, unlesse they bee quite severed from their *periostium*. But if they bee severed, you shall open the skinne and take them forth, and then dresse the wound as is fit. Wee understand, that onely the processes of the *vertebra* are broken, if, in the absence of the fore-mentioned symptomes of numnes and the palsy, you, laying your finger upon the grieved part, feele something, as a bony fragment, shaking and moving thereunder, with a certaine crackling noyse, and cavitic, and depression; and then, if when the Patient holds downe his head, and bends his backe, hee feele farre more paine, than when hee stands up straight on his feete. For in stooping, the skinne of the backe is somewhat stretched forth, and extended, and also forced upon the sharpe Splinters of the fragments, whence proceedes a dolorifick solution of continuitie, and a pricking: in standing straight up, on the contrary, the stretched skinne is relaxed, and consequently lesse molested by the sharpe fragments. The fractured processes of the *vertebra* easily heale, unlesse they bee associated with some other more grievous symptome which may hinder; such as is a certaine great contusion, and the like. For, as wee formerly sayd out of Hippocrates, All rare and spongie bones are knit by a *Callus* within a few dayes.

The affects of
the *vertebra*.

Seck. 2. Proth.

The cure of
fractured *Ver-
tebra*.

The cure of the
processes.

Signes that on-
ly the processes
are fractured.

CHAP. XIV.

Of the fracture of the holy-bone.

What fracture
of the Holy-
bone curable
and what not.



Also the Holy-bone in a certaine part thereof, which may be easily healed, may be broken by the blow of bruising things, as by a bullet shot out of a musket, as I have observed in many. But if the fracture violate, together with the *vertebra* thereof, the spinall marrow contained therein, then the Patient can scarce scape death, for the reasons shewed in the former Chapter.

CHAP. XV.

Of the fracture of the Rump.

The description
of the rump.



The cure.

The Rump is composed of foure bones: the first whereof hath a cavities, wherein it receives the lowest *vertebra* of the Holy-bone: the other three are joyned together by *Symphysis* or Coalition; at the end of these hangs a certaine small gristle. The fracture of these bones shall be cured by putting your finger into the Patients fundament, and so thrusting it even to the fractured place. For, thus you may thrust the fragment forth, and fit and restore it to the rest of the bones by your other hand lying upon the backe. But that it may be the sooner healed, it is fit the Patient keep his bed, during all the time of the cure. But if there be a necessitie to rise, hee shall so sit in a perforated seat, that there may bee nothing which may presse the broken part; and sitting remedies for healing fractures shall be applyed, as occasion shall offer its selfe.

CHAP. XVI.

Of the fracture of the Hip, or Os Ilium.

The description
of the Hip.



The signes.

The cure.

The Hip consists of three bones: The first is named *Os Ilium*, the Haunch-bone; the other, *Os Ischion*, the Huckle bone; the third, *Os pubis*, the Share-bone. These three bones in men of full growth, are so fast knit and joyned together, that they can by no meanes be separated; but in children they may be separated without much adoe. This bone may be broken in any part thereof, either by a stroake, or by a fall from high upon any hard bodie. You shall know the fracture by the same kinde of signes, as you know others, to wit, paine, pricking, a depressed cavities, and inequality, and also a numnesse of the legge of the same side. The splinters of the bones (if quite broke off) must by making incision be taken away at the first dressing: in performance of which operation, you must have a care, that you hurt not with your instrument the heads of the muscles, nor any vessels, especially which are great; nor lastly, that large nerve which is sent into the muscles of the thigh and legge. On the contrary, such fragments as are not broken or severed from their *periostium*, shall bee smoothed and set in order with your fingers, as is fitting. Other things shall be done according as art and necessity shall perswade and require.

CHAP. XVII.

Of a fracture of the Shoulder, or Arme-bone.

THe Arme-bone is round, hollow, full of marrow, rising up with an indifferent necke, and ending on the upper part into somewhat a thick head. On the lower part it hath two processes, the one before, the other behind: between which there is (as it were) an halfe circle, or the cavity of a pulley, each end whereof leads into its cavities, of which one is interior, another exterior; that by these (as it were) hollow stops, the bending and extension of the arme might bee limited: lest that the bone of the cubite, if the circle should have beene perfect, sliding equally this way and that way, might, by its turning, have gone quite round, as a rope runnes in a pulley; which thing would much have confused the motion of the Cubite. For so the extension, or bending it backe, would have beene equall to the necessarie bending it inwards. It is very expedient that a Surgeon know these things, that so hee may the better know how to restore the fractures and luxations of this part. If one of the fragments of this broken bone shall lye much over the other, and the patient have a good strong bodie, then the arme shall be much extended, the Patient being so set upon a lowe seat, that he may not rise, when the fracture shall bee a-setting, and so hinder the begunne worke; and also, that so the Surgeon may the more easily performe his operation upon the Patient seated under him: yet Hippocrates, regarding another thing, would have the Patient to sit higher. But you must have a care, that the shoulder-bone it selfe be drawne directly down-wards, and the cubit so bended as when you put it into a scarfe. For if any one set this bone, lifting the arme upwards, or otherwise extending it, then must it be kept in that posture: for otherwise, if the figure be changed, the setting will quickly bee spoyled, when as you come to put the arme in a scarfe. Wherefore the Surgeon must diligently and carefully observe, that in setting a broken arme, hee put it in such a posture, that resting on the breast, it looke downe towards the girdle. You must have a care in laying the splints, and rowling your ligatures, that they hurt not, nor presse too hard upon the joynts. For, in the opinion of Hippocrates, by the pressure of parts which are nervous, fleshlesse, and consequently endued with exquisite sense, by the splints there is danger of most grievous paine, inflammation, denudation both of the bone and nerve; but chiefly, if such compression hurt the inner part, towards which the arme is bended: wherefore the splints made for this place must bee the shorter. Therefore, after the Arme-bone is set, the arme shall bee layd upon the breast in a right angle, and there bound up in a scarfe, lest that the Patient, when he hath neede to stirre, spoyle and undoe the setting, and figure of the broken bone. But the arme must be kept in quiet, untill such time as the fragments shall bee confirmed with a *Callus*, which usually is in fortie dayes, sooner or later, according to the different constitutions of bodies.

The description
of the arme
or shoulder-
bone.

The cure.

How the arme
must be placed
when the bone
is set.

Secl. 3. offic.
secl. 1. de fract.

In what time it
will knit.

CHAP. XVIII.

Of the fracture of the Cubit, or the Ell and Wand.

Sometimes happeneth, that the Cubite and Wand are broken together and at once, and otherwhiles that but the one of them is fractured. Now they are broken eyther in their midst or ends; their ends (I say) which are eyther towards the elbow, or else towards the wrest. That fracture is worst of all, wherein both the bones are broken, for then the member is made wholly impotent to per-

The differences

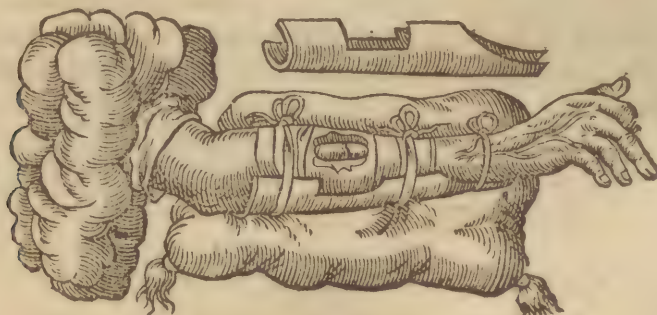
forme any sort of action, and the cure is also more difficult; for the member cannot so easily be contained in its state: for that bone which remains whole, serves for

The cure.

Sent. 3. sect. 1.
de fract.Com. in lib.
de art.

for a stay to the arme, and hinders the muscles from being drawn backe, which usually draw backe and shrinke up themselves, whensoever both bones are broken. Hence it is, that that fracture is judged the worst, wherein the Cubit or Ell bone is broken. But that is easiest of all, wherein onely the Wand is broken, for so the fractured part is sustained by the Ell-bone: When both the bones are broken, there must bee made a stronger extension, for that the muscles are the more contracted. Therefore, whensoever eyther of them remaines whole, it doth more service in sustaining the other, than any eyther ligatures or splints, for that it keeps the muscles right in their places. Wherefore, after the bones shal be set and rowled up with ligatures and splints, the arme must bee so carried up in a scarfe put about the necke, that the hand may not be much higher than the elbow, lest the blood and other humors may fall downe thereinto. But the hand shall be set in that posture which is betweene prone and supine, for so the Wand shall lye directly under the Ell, as we have read it observed by Hippocrates. The reason is, for that by a supine figure or situation, both the bone and muscles are perverted: for first, for the bone, the *Apophyfis*, *styloides* and *Olecranon* of the Cubit, ought to be in an equall plaine, and to be seated each against other; which is not so in a supine figure, as wherein the *Processus styloides* of the Cubit is set against the inner processe of the arme bone. But in muscles, for that, like as the insertion and site of the head of a muscle is, such also is the site of the belly thereof, and lastly, such the insertion of the tayle thereof; but by a supine figure, the muscles arising from the inner processe of the arme bone and bending the cubit, shall have their tayle placed in an higher and more exterior site. In the *interim*, you must not omit, but that the Patients arme may, with as little paine as possibly you can, be bended and extended now and then, lest by the too long rest of the tyed up part, and the intermission of its proper function, the bones of the joynt may be sowed together by the interposition, and as it were glue of the defluxion which falls abundantly into the joynt of the Ell-bow, and neighbouring parts, whence the stiffenesse and unmoveablenesse thereof, as if there were a *Callus* growne there: from whence it may happen, that the arme thereafter may neither be bended, nor extended, which I have observed to have happened to many. Whereof also Galen makes mention, and calls this kinde of viciated conformation *Ancyle* and *Ancylosis*. If a wound also associate a fracture of the arme, then see, that you put about it plates of Latin, or Past-board, and make a convenient Ligature, and that the fragments of the bones be kept in the same state wherein they were set and restored. Moreover, let him lay his arme upon a soft pillow or cushion, as the following Figure shewes you.

The figure of a fractured Arme, with a wound bound up, and seated, as is fit.



CHAP. XIX.

Of the fracture of a Hand.

THe bones of the Wrist, and the back of the hand, may bee broken : but, See l. 1. de fract. sent. 9. in Hippocrates opinion, chiefly by that kind of fracture which is called a *Sedes*; now if they shal happen to be broken, this shal be the maner of restoring them. Let the Patient lay forth his hand upon some even and smooth table, then let your servant stretch forth the broken bones, & the workmaster restore them thus extended, and put them in their proper seats. But being restored, they must be kept in their places by such remedies as are used in other fractures ; to wit, cerates, compresses, linnen clothes, and splints. Now the fractured fingers shall be tyed or bound to their neighbours, that so they may the more easily, as bound to a stake, be kept in that state wherein they have been put by the hand of the Workeman. But these bones, seeing they are of a rare and spongie nature, are in a short time and easily strengthened, or knit by a *Callus*. These things being done, the hollownesse or palme of the hand shall be filled with a Tennis ball, for thus the broken bones shall not only be more easily kept in their places, but also the fingers themselves shall be kept in a middle posture, that is, not wholly open, nor quite shut. If they be kept in any other figure, the ensuing *Callus* will either deprave or quite abolish that action of the hand, wherby we take hold of any thing. The case stands otherwise with the fractured Toes, for they shall bee kept straight and even out, lest they should hinder our going or standing.

The cure.

To what purpose the carrying of a ball in a fractured hand serves.

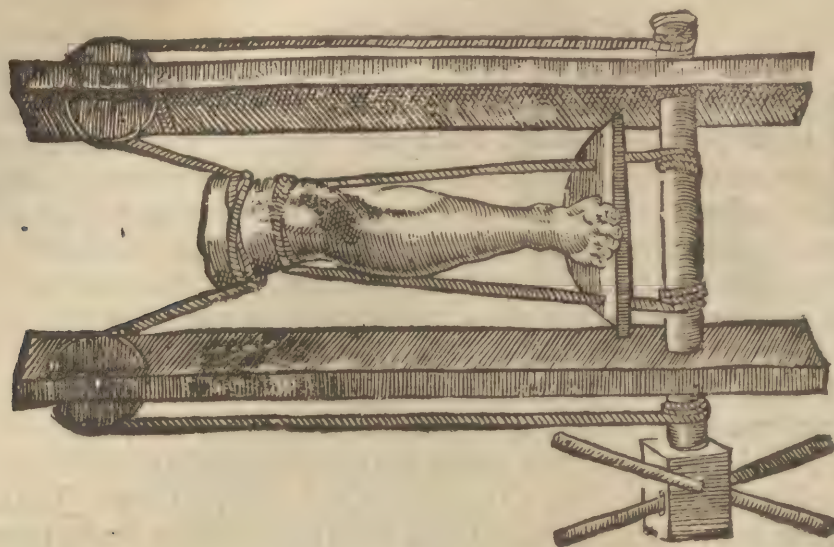
CHAP. XX.

Of the fracture of a Thigh.

IT is a hard thing to bring the fragments of the broken thigh together to be set, by reason of the large and strong muscles of that part; which whilest they are drawne backe towards their originall, by a motion both naturall and convulsive, they carry together with them the fragment of the bone, whereinto they are inserted. Therefore, when as the fracture of this bone shall be restored, the Patient must lye upon his back with his legge stretched forth, and the Surgeon must strongly and with great force extend the thigh ; but if he alone shall not be able sufficiently to extend it, he shall imploy two other strong attendants, by whose joint-helpe the fragments may be fitted and set each against other. For this purpose, when as the strength of the hand was not sufficient, the Ancients used an Instrument, called a *Glossosomium*, whereof this is the figure.

Why the bone of the thigh is more difficultly set.

The figure of a Glossocomium, or Extender.



Sent. 67. & 68.
sect. 2. de fract.

The naturall
and internall
crookednesse
must be prefer-
red in setting
the bone.

The part to bee
bound up, must
be made plaine
either by na-
ture or art.

The manner of
binding used by
Surgeons at
this day.

In stead of this *Glossocomium*, you may make use of my pulley; for Hippocrates in this bone when it is broken, doth approve of extension so great, that although by the greatnesse of the extension the ends of the fragments be somewhat distant asunder, an emptie space being left betweene; yet notwithstanding would hee have ligation made. For it is not here as it is in the extensions of other bones, whereas the casting about of Ligatures keeps the muscles unmoveable: but here, in the extended thighes, the deligation is not of such force, as that it may stay and keepe the bones and muscles in that state, wherein the Surgeon hath placed them. For, seeing that the muscles of the thigh are large and strong, they overcome the ligation, and are not kept under by it. The Surgeon, in setting it, shall also consider, that the thigh-bone is hollowed on the inner side, but gibbous on the outside, therefore it must be set in its native figure. Otherwise, if anie, unmindefull of this consideration, would have it straight, he shall make his Patient halt all his life after: wherefore this inner and native hollownesse must be filled up and preserved by putting in a compresse or boulder, spread over with *unguentum rosatum*, or the like glutinous thing that it may not fall off: for thus also the ligation shall the more faithfully keep the fragments of the bone in their places. Moreover, compresses shall be applied to the more slender and lesse protuberating parts of the thigh, as those which are next the ham and knee, that so the whole ligation may be alike, and consequently the more firme. Now ligatures, as we formerly noted, are ordained for three things. The first is, that the bones may bee kept in that state wherein they were set, untill they be strengthened by a *Callus*. The second is, to hinder defluxion, which easily falls into the broken and luxated parts, both by reason of paine, as also by weakness. The third is, to stay and hold fast the splints and medicines which are applied. Inflammation is hindred by repressing and hindring the blood and other humours, ready to flow downe, from entring into the part, and by pressing those humours, which are preternaturally contained in the part, into the neighbouring parts above and below. Wherefore there must no small care be had of preparing ligatures, to wit, that they bee made of choyce and well woven cloth, yet not course or rough; and let them be of such length and breadth, as the Surgeon, perswaded by an artificall conjecture, shall judge to be fit for the thicknesse and length of the member, and greatnesse of the fracture: for ligatures ought to be of breadth to involve and cover all the fractured part, and a great part of that which is sound. But seeing that in my Booke of Bandages, I have seemed chiefly to set downe and approve the manner of binding used by Hippocrates, now I thinke good here in this place to describe that which is in common use amongst our Surgeons.

Our Surgeons therefore at this day require three Ligatures for fractures, the first whereof they presently cast upon the hurt part, whether broken or dislocated, or onely strained, making the first wrappings upon it; so that they most and straitliest binde it there, but lesse and more loosely on both sides thereof. Such circumvolutions, or wrappings, are drawne upwards, and there ended. They must bee rowled thicke, and not wide; for so if they presently follow, and lye one upon another, they will hold the bones more firmly, and more farre and wide presse forth and re- presse the superfluous blood from the sound part. They presently in like sort cast the second ligature upon the verie fracture, giving it two wraps, then going downwards; yet so, as that they are opener or wider, and farther distant each from other, and not so close together, as the circumvolutions of the first ligature; that so they may presse the humors the lesse to the extremities of the part, as those which cannot receive and beare, without inflammation and danger of a gangrene, such abundance of humors, for that they are not sufficiently spacious, as also more remote from the fountaine of native heat, which is greater in the center than in the circumference. At the lower end of the hurt part the circumvolutions either end, or else are twined thence backe againe. They cast on the third ligature in that lower end of the hurt part, and rowle it smoothly and gently upwards, the windings being made contrarie to the windings of the first and second ligatures; that they may so draw backe into their naturall state the muscles, which peradventure have beene drawne aside by the force of the former wrappings. These ligations finished, they apply three splints of past-board, or some such matter; the first below the fracture, and that truly more broad, and of sufficient length; and then two others, one on each side, distant each from other some fingers breadth, to the end to keep the bone that it doe not stirre to this side or that, being wrapped about with Tow or Cotton. Then they thinke of placing or laying the part, to which purpose they propound to themselves three scopes. The first is, that the part may lye soft; the second, smooth, or even; the third, somewhat high. The hurt part ought truly to lye soft, for that hard lying presses it, and causes paine and inflammation; which whiles the Patient cannot patiently endure, he is forced to change his place, whilst he everie way seeks ease for his paine: and thus he now and then moves the fractured part, which ought to be kept quiet without any motion. It must lye smooth or even, because an unequall or uneven site distorts or draws awry the part, whilst one portion of the hurt part is borne up, and sustained by that which lyes under it; but the other hanging downe hath nothing thereunder, whereupon it may rest. Therefore Hippocrates bids us diligently to take heed, that the heele doe not hang downe, nor the foot remaine without a pillow, for hence paine and a troublesome defluxion of humors is to be feared. But the part ought to lye somewhat high, that the defluxion may bee hindred, which is easily stirred up by a prone and declining site: for if the foote shall be placed in a lower figure, the blood which flowes thither from the legge, will cause inflammation. But on the contrarie, if it bee higher, nothing can flow downe thereinto. Therefore absolutely not only the foote, but also the thigh and legge, are to be placed higher than the rest of the bodie: yet, keeping such a meane, that the part may not be too much distended, as Hippocrates admonisheth us. In the meane time, this hurt legge or side, ought to bee of equall length with the sound, and for that purpose it must bee stayed on both sides with Junks, as we shall shew you hereafter, when we come to speak of a broken legge. The bandage being performed as we have said, the following night, and the next day the Patient feels the member more straitly bound, than when it was first wrapped; yea, verily the knee is lifted up into a soft tumor by the expression of the humor from the wounded part: but on the contrarie, the ensuing day the ligation is slackned and relaxed, some portion of the humor contained in the part being digested. Also the next day all things are perceived more loose, there being made a larger resolution of the humor. Then therefore the Bandages must be loosed, and that not only, lest that the fragments of the bones should fall forth of their place, but also that we may gratifie the Patient by that alteration or change of place, and besides that wee may avoyde itching, which usually happens to parts too long bound up,

Why the windings of the upper ligatures must be thicker and straiter than the lower.

Why the third ligature must bee rowled contrary to the two first.

The Surgeon must be minded full of three things in placing the member.

Scet. 2. de fract.

Scet. 33. & 36.
scet. 2. de fract.

When the first ligation must be loosed.

by reason of the suppression of acride and fuliginous excrements, which use to be gathered in great quantitie in a part at rest and bound up, both from the excrementitious humors, wherewith the part is moistened, and the alimentarie humors in a part which is idle and at quiet; by reason the distillation and transpiration are hindered by want of exercise, and the pores of the skinned shut up by the abundance of the ligatures: so that by the suppression thereof, many have not only an itching, but also, the skinned being broke by the acrimonie of these, as well vapours as humors, which are kept shut and pent up, have ulcers breake forth. Therefore when such accidents shall be feared, the part shall so long be fomented with warme water and oyle, as you shall thinke fit: for, such fomenting asswageth paine, relaxeth that which was too much straitened by the binding, and amends the refrigeration of the part, caused by the repercussion and expression of the blood and spirits, the native and internall heat being by this meanes revived. If, together with the tumor, there be a contusion and ligation, it must bee the longer fomented, that the excrementitious humor residing in the part may be digested. But if this quantitie of time shall not suffice, then must you use stronger digestives: yet have a care you use them not too long; for so you should hinder the generation of a *Callus*. Therefore that saying of Hippocrates must here be remembred, which saith, That a weak fomentation, and the short time of using one doth attract, but not discusse; but a longer and stronger wastes the flesh. Besides also, you must have regard to the temper and habit of the Patient; for fomentations, used to plethorick bodies, draw superfluous humors to the part. The Ancients bid, that the ligatures be loosed everie third day, untill their seventh day; but after the seventh, on everie seventh day: but hereof nothing can be certainly and perpetually decreed. For, according to the accidents the Patients must be dressed sooner or later, more often or seldome, renewing the ligatures, and the rest of the dressing. Therefore, if no symptome urge, I would have none of these things, which are done to the Patient at the first dressing, to be moved, unlesse as slowly and seldome as you may. For you hinder the knitting of the bone, if you never so little move the ends of the fragments thereof: for, as you see wood is joyned together by glue, and pewter with sowder; so the fragments of bones are, by the providence of nature, glued and sowdred together by a *Callus*. Wherefore broken bones have very much need of rest, to the generating of a *Callus*; otherwise, the matter thereof flowing downe, quickly flowes away, and nothing is done. You may much helpe forwards the generation of a *Callus*, which is begunne about the thirteenth or fifteenth day, by applying an emplaister made with the white of an egge, having the powder of red rose leaves, and wheat flour mixed therewith, and other Catagmatick plaisters, which shall hereafter be described in speaking of the fracture of a legge.

Gen. 15. sect. 3.
etc. offic.

Rest necessary
for the knitting
of set bones.

CHAP. XXI.

Of the fracture of the Thigh nigh to the joynt, or the upper or lower head of the bone.

A historie



Fracture sometimes happens at the joynt of the hip in the neck of the thigh-bone, as I once observed in an honest matron. I being called to her, when I had observed the hurt Thigh to be shorter than the whole, with the outward prominencie of the *Ischium*, which at the first sight I supposed to proceede from the head of the thigh bone, I presently perswaded my selfe it was a dislocation and no fracture; I then therefore extended the bone, and forced (as I thought) the head thereof into its cavities. The equalitie of both the legges in bignesse which followed upon this extension, encreased my perswasion that it was a dislocation. The next day I visited her the second time, and found her in great paine, her hurt legge the shorter, and her foot wrested inwards.

Then

Then I loosed all her ligatures, and perceived such a prominencie as I did formerly. Wherefore I endeavoured againe to force in the head of the bone, as I formerly did. But as I was busied therein, I heard a little crackling, and also I considered, that there was no cavitie nor depression in the joynt, by which signes I certainly perswaded my selfe, that the bone was broken, and not dislocated. Neyther only such kinde of Fractures, but also the separation of the *appendix* or head of this bone from its place, may induce one to thinke it a dislocation; which thing hath sometimes deceived some heedlesse Surgeons, who have not dreamt of the divulsion or separation of the *appendix* from the top of the Thigh-bone, but have judged it only a dislocation. Then therefore (that I may returne to my former narration) I set the bone, and joyned the fragments together, layd thereupon splints with compresses, made ligations with a rowler, having two heads wrapped about the joynt, and the bodie crosse-wise, and I defended her foote with a Case, that none of the clothes might presse it. I fastened a rope to a poste, and so let it come downe into the midst of the bed, and tyed many knots thereon, for the better taking hold and lifting up her selfe; the which thing you must alwaies doe in fractures and dislocations of the thigh and legge, that so your Patients may have some stay, whereby they may succour themselves with their hands, as oft as they desire to rise; or lift themselves up in their beds, or goe to stoole; as also, that they may give perspiration, and as it were ventilation to the loynes, buttocks, rumpe, and other parts, compressed and wearied with long lying, for want wherof they are molested with heat and paine; whence ulcers arise, which oft-times torment the Patient with such tormenting heate and paine, that he is even consumed by a fever, watchings, and want of rest. This opportunitie of raising the bodie out of the bed, is by so much the more needfull in this place, by how much the fracture is nearer the joynt: for there it is more dangerous than in the midst of the thigh, and consequently more difficult to dresse and heale, for that the part is bloodlesse, and by reason of the multitude of the nerves, tendons and ligaments, which are obnoxious to many maligne symptomes. But the Surgeon must have diligent care in this kinde of fracture, and must looke often that the bone, which is set, doe not fall forth againe, which easily happens here by any light stirring of the bodie, & the like occasion, for that the thigh hath but one onely bone. Therefore, as oft as the Bandages shal be loosed, and the fracture dressed, hee shall attentively view the figure of the bone, and the magnitude of the affected part, comparing it with the sound; for the set and composed fragments of the broken bone, can scarce fall asunder, but that the one must lye upon the other. But before it be knit, the part must be extended and restored to its state, that so the Patient may not halt during the residue of his life. For I have read it written in Avicen, that scarce any doe so well recover a fractured thigh, that they doe not halt thereof: therefore the Patient must be carefull, that hee move himselfe, or his bodie, as little as hee can. Many of the Ancients have set downe the time of the consolidation of this bone to bee fiftie dayes: but (as I formerly sayd) there can bee no certaine or determinate time hereof. But in what time soever this bone shall bee knit, the Patient must not stand or goe thereon presently upon it; for that there remaines a weakenesse in the part a long time after, so that the Patients are forced to use Crutches to goe withall, in the meane space while they recover more strength.

Another fracture of the thigh, resembling a luxation.

Why the fracture of a bone neare a joynt is more dangerous.

Lib. 3. sen. 6.
tracl. 1. c. 14.

In what space the thigh bone may be knit.

CHAP. XXII.

Of the Fracture of the Patella, or whirle-bone of the Knee.

The differences.

Signes.

Cure.



He Whirle-bone of the knee is oft times contused, but not so frequently broken : yet when that happens, it goes into two or three peeces, sometimes long-wise, sometimes athwart. Sometimes it is broken in the midst, and some-whiles shivered into many splinters, and all these cyther with, or without a wound. The signes are, impotencie in going, a hollownesse in that place, and a sensible separation of the fragments of the hurt part, and the crackling of these parts under your hand. It is set after this manner; With the Patient to stretch forth his legge, yea, hee must keepe it extended all the while, untill it be knit; and therefore lest hee should bend it unawares, the hollownesse of the Ham shall be filled with a boulster: for by bending of the knee, the set fragments of the whirle-bone would againe fly in sunder. This being done, the fragments shall by the hand of the Surgeon be set as is fitting, and be kept so set by the application of convenient remedies, making ligatures, and applying Junks, as wee said must be done in a fracture of the Thigh-bone. And lastly, you must observe and doe in this, as in the fracture of a legge. For the Prognostick, this I affirme, That I have seene none of those who have had this bone fractured, who have not halted during the rest of their lives. The cause hereof is, the knitting by the concretion of a *Callus* hinders the free bending of the knee; going, especially on even ground is more easie to the Patient, but an ascent is farre more difficult, and absolutely painfull. The Patient must necessarily for this kinde of fracture lye or keep his bed, at the least for forty dayes.

Why those halt
who have had
this bone fractured.

CHAP. XXIII.

Of a broken Legge.

Sent. 65. sect. 2.
de fract.



His kinde of Fracture is cured after the same manner as that of the arme or cubit. Hippocrates admonisheth us, that the *Tibia*, or Leg-bone is more dangerous to be broken, and more difficult and slow to be healed than the *Fibula*, or Shin-bone; because that is the thicker, and as it were the upholder of the whole bulke of the bodie: but this other is but as it were a certaine additament or assistant, provided for the staying or bearing up of the muscles of the legge, by which the foot is moved. The legge bone being only broken, the signes thereof are perceived onely in the inner part of the legge; for that the Shin-bone being whole, suffers it not to throw or cast forth its selfe. On the contrarie, when the Shin-bone onely is broken, the signes thereof appeare only in the externall part of the legge; because the legge bone, being opposed thereto, doth not suffer it to cast in its selfe, and with its fragments to turne inwards. But when both the bones are broken, the signes of the fracture may equally appeare both here and there. But when only one of these bones are broken, the fracture is farre more easie to dresse and heale, because that which remaines whole, is a much more firme stay to that which is hurt, than any splints can bee. But that I may the better instruct and make readie the Surgeon for the restoring of this fracture, I will illustrate the matter by an example from my selfe. John Nestor, Doctor of Physick, Richard Hubert, and I, went together to visit a Patient at the Place of the Frier Minorites. Wherefore, intending to passe over the Seine within sight of the place, I endeavoured to make my horse take boat, and therefore swirched him over the buttocks. The Jade, maddened herewith, so stricke at me with his heels, that he brake both the bones of my left legge, some foure fingers breadth above my ankle. Then I, fearing some worse mischiefe, and lest the Jade should double his blow, flew back; and as I fled backe, the broken bones flew in sunder, and breaking through the flesh,

Signes that
both the bones
are broken.

A historic.

stocking

stocking and boote, shewed themselves, whereby I felt as much paine, as it is credible a man was able to endure. Wherefore I was presently carried into the boate, that so I might be carried to the other side of the water to be dressed: but the stirring of the boate as they rowed, almost killed me with bitternesse of paine, for that the sharpe fragments of the bones were rubbed against the flesh which lay next them. Being ferried over, as I was conveyed into the next houses, my pain was much encreased, whilest lifted by the hands of divers persons, one while up, another downe, sometimes to the left side, otherwhiles to the right with my whole bodie, and all the parts thereof. When at the length, I was layd upon a bed, I was somewhat freed from the bitternesse of my paine, and had time to wipe off the sweat, which ranne downe over all my bodie. Then was I dressed with such a medicine, as the time and place would affoord; we composed it of the white of an egge, wheat floure, soote of a chimney, and melted butter. For the rest, I intreated Richard Hubert, that he would handle me, as if he knew mee not, neither that, moved for love of mee, he should remit any thing of the severitie of art, but chiefly, that hee would stretch my foot straight out, and if the wound were not sufficiently wide, that hee would enlarge it with his incision knife, that so hee might the more easily set the broken bones in their due place; that hee would with his fingers (whose judgement is farre more certaine than the best made instruments) search, whether the splinters which were in the wound were quite severed from the bone, and therefore to be taken forth; that he would with his hand presse forth the blood, and the clods of blood which were in a great quantitie concrete at the mouth of the wound; that he would bind up and place my legge in that fite and manner, as he thought best: which is, that he should have three rowlers in a readinesse; the first whereof he should cast directly upon the wound, so that he should beginne his ligation at the wound: also he should put splints about it; some three, but others two fingers breadth, of the length of halfe a foote, somewhat depressed and hollowed, whereby they might be the more easily put about the legge, more straitly at their ends, and a fingers distance each from other, which at the last he should binde with fillets, like those wherewith Women use to binde up their haire; yet so, that the binding might be more strait upon the wound: and that he would fill the cavities of the ham, and of the ancles, with bouldsters made of flaxe wrapped in linnen clothes: that he would fortifie the sides of my legge with Junkes made of bents or little stickes, and lined with linnen cloth, stretched from my heele to my groine, and bound over in foure places; so that the strait figure of the legge might scarcely be perverted by any force: that he would gently, and smoothly lift up my legge to an indifferent height: and lastly, that he should arme it from the violence of externall injuries, by putting it in a boxe or case. But you must note, that the fit placing or laying of the legge is a matter of such moment, that if any errour be here committed, it will cause no lesse than lamenesse. For if it be lifted up higher than is fit, the *Callus* will be hollow on the foreside; if lower, then it will be gibbous or bunching forth. Neither also doe they commit a small errour, who doe not fill up the cavities at the ancles after the forementioned manner: for, hereupon the heele will be much afflicted, whilest it is forced to sustaine a tedious and painefull compression, which at length brings a hot distemper, because the spirits cannot freely flow thereto; which I, finding by experience, not knowing the cause, wished them ever now and then to lift up my heele, wherby it might enjoy the benefit of perspiration, and the spirits have free entrance thereinto, & the contained vapours passing forth. To conclude, my hurt legge was layd upon a cushion after the manner you see here described.

A soone made
medicine.

What to doe
wth on the legge
is broken.

The figure of a Legge fractured with a wound, and bound up.



CHAP. XXIV.

Of some things to be observed in Ligation, when a fracture is associated with a wound.

That the ligation must be most strait upon the wound.

What symptoms ensue the want of binding upon the wounded part.

Signes of the corruption of the bones.

When the wounded part must be omitted in ligation.

His, taken out of the doctrine of the Ancients, ought to be kept firme and ratified, That Ligation must be made upon the wound; otherwise the wounded part will presently lift it selfe up into a great tumor, receiving the humors pressed thither by the force of the Ligation made on this and that side, above and below, whence ensue many maligne symptoms. You may make triall hereof upon a sound fleshie part, for if you binde it above and below, not touching that which is in the midst, it will be lifted up into a great tumor, and change the flourishing and native colour into a livide or blackish hue, by reason of the flowing and abundance of the humors pressed forth on everie side from the neighbouring parts. Therefore such things will happen much the rather in a wounded or ulcerated part. But for this cause, the ulcer will remaine unsuppurated and weeping, crude and liquid *sanies* flowing there-hence, like unto that which usually flowes from inflamed eyes. Such *sanies*, if it fall upon the bones, and make any stay there, it, with the touch therof, burnes and corrupts them, and so much the more, if they be rare and soft. These will be the signes of such corruption of the bones; if a greater quantitie, and that more filthie *sanies*, flow from the ulcer, than was accustomed, or the nature of a simple ulcer requires; if the lippes of the ulcer be inverted; if the flesh be more soft and flaccid about them; if a sorrowfull sense of a beating, and also deepe paine torment the Patient by fits; if, by searching with your Probe, you perceive the bone to be spoyled of its *periostium*; and lastly, if you finde it scaily and rough, or also if your Probe be put downe somewhat hard, it runne into the substance of the bone. But we have treated sufficiently hereof in our particular Treatise of the rottenesse of the bones. But certainly such rottenesse will never happen to the bone, if the hurt part be bound up, as is fit, and according to art. Wherefore I judge it not amisse, againe to admonish the Surgeon of this, That as farre as the thing shall suffer, hee make his rowlings upon the wound; unlesse by chance there be such excessive paine and great inflammation, that, through occasion of such symptoms and accidents, he be diverted from this proper and legitimate cure of the disease. Therefore then, because nothing more can be done, let him only do this, which may be done without offence; that is, let him supply the defect of ligation and rowlers, with a linnen cloth, not too weake, nor too much worne, being twice or thrice doubled, and which may serve to compassse the wound and neighbouring parts once about: let him sew the edges thereof at the sides of the wound, lest he be forced to stirre the fragments of the bones (which once set ought to be kept unmoved) as often as the wound comes to be dressed. For, broken bones doe not require such frequent dressing, as wounds and ulcers doe. By this it appeares, that as want of binding, and too much loosenesse in absence

sence of paine and a Phlegmon, so also too strait ligation, when paine is present, brings a Phlegmon and Abscesse to the wound. Therefore let all things here, according to the forementioned rules and circumstances, be indifferent. I have for this purpose thought good to reiterate these things, because you shall as yet finde many, who follow the practice of Paulus, and make many circumvolutions here and there, above and below the wound, which presently they carrie crosse-wise. But this crosse or lattice-like kinde of ligation is wholly to be disliked, and that onely to be used which we have described, according to the minde of Hippocrates. Now it is time, that I returne to the former historie of my mishap, and declare what was done to me after that first dressing, which I have formerly mentioned.

Lattice-like
binding to be
shunned.

C H A P. XXV.

What was used to the Authors Legge after the first dressing.



Being brought home to mine owne house in Paris in the afternoon, they tooke from me, out of the Basilica of the left arme, some sixe ounces of blood. And then at the second dressing the lippes or edges of the wound and places thereabout were anointed with *unguentum rosatum*, which, by a joynt consent of the Ancients, is much commended in the beginnings of fractures: for it will assuage paine, and hinder inflammation, by

Unguentum rosatum, wherefore good in fractures.

repelling the humors farre from the wounded part: for it is cold, astringent and repelling, as the composition thereof shewes; for it is made *ex oleo omphacino, aqua rosacea, pauco aceto & cera alba*. Therefore I used this oyntment for sixe dayes, I dipped the compresses and rowlers somewhiles in oxycrate, otherwhiles in thick and astringent red wine, for the strengthening of the part, and repressing the humors; which two things wee must have a care of in Hippocrates opinion, in fractures especially with a wound. Wherefore if at any time the compresses or rowlers seemed to dry, I now and then moystened them with the oxycrate, or rose vineger: for, by their too much drinesse, paine and inflammation happen; and if they binde the part somewhat more strait, they hurt it also by their hardnesse. You shall see many surgeons, who in this kinde of affect, from the beginning to the end, use onely astringent and emplastick medicines, wholly contrary to the methode set down by Hippocrates, and commended by Galen. For, by the continued use of such things, the pores and breathing places of the skinne are shut up; whence the fuliginous excrement being supprest, the externall heat is increased, and itching caused, and at length an ulcer by the fretting of the acride and serous humor long supprest. Whereby you may learne, that astringent and emplastick medicines must not be used above sixe daies. In stead hereof you shall use the emplasters, which I shall presently describe. In the beginning of my disease I used so spare a diet, that for nine daies, I ate nothing each day, but twelve stewed prunes, and sixe morsels of bread, and dranke a Paris pinte of sugred water, of which water this was the composition.

You must have a care, that the compresses and rowlers grow not hard by drinesse.

R. sacc. albis. ʒ xii. aqua font. ℥ xii. cinam. ʒ iii. bulliant simul secundum artem. Otherwhiles I used syrup of maydens hair with boyled water: Otherwhiles, the divine drinke (as they terme it) whereof this is the composition. *R. aqua cocta ℥ vi. sacc. albis. ʒ iii. succ. lim. ʒ i. agitentur & transvasentur saepius in vasis vitreis.* I was purged when neede required with a bole of *Cassia* with *Rubarbe*. I used also suppositories of Castle soape to make me goe to stoole; for, if at any time I wanted due evacuation, a preternaturall heat presently seized upon my kidneyes. With this, though exquisite manner of diet, I could not prevaile, but that a fever tooke mee upon the eleventh day of my disease, and a defluxion, which turned into an Abscesse, long flowing with much matter. I thinke the occasion hereof was some portion of the humor supprest in the bottome of the wound; as also by too loose binding, by reason that I could not endure just or more strait binding; and lastly,

The description of a sugred water.

The causes of a fever and abscesse, ensuing upon a fracture, scales

Signes of scales
severed from
their bones.

scales or shivers of bones quite broke off, and therefore unapt to be agglutinated : for these therefore putrefying, drew by consent the proper nourishment of the part into putrefaction, and by the putredinous heat thence arising, did plentifully administer the materiall and efficient cause to the defluxion and inflammation. I was moved to thinke they were scales, severed from their bone, by the thin and crude *sanies* flowing from the wound, the much swolne sides of the wound, and the more loose and spongie flesh thereabouts. To these causes, this also did accrew, one night amongst the rest, as I slept, the muscles so contracted themselves by a violent motion, that they drew my whole Legge upwards ; so that the bones, by the vehemency of the convulsion, were displaced, and pressed the sides of the wound ; neyther could they be perfectly composed or set, unlesse by a new extension and impulsion, which was much more painefull to mee than the former. My fever, when it had lasted with me seven dayes, at length enjoyed a *Crisis* and end, partly by the eruption of matter, and partly by sweat, flowing from me in a plenteous manner.

CHAP. XXVI.

What may be the cause of the convulsive twitching of broken members.

Why the extreme parts are cold when we sleepe.



His contraction, and (as it were) convulsive twitching, usually happens to fractured members in the time of sleepe. I thinke the cause thereof is, for that the native heat withdraws its selfe while we sleepe, into the center of the body ; whereby it commeth to passe, that the extreme parts grow colde. In the meane while, nature, by its accustomed providence, sends spirits to the suply of the hurt part. But because they are not received of the part evill affected and unapt thereto, they betake themselves together, and suddenly, according to their wonted celerity, thither from whence they came, the muscles follow their motion : with the muscles, the bones, whereinto they are inserted, are together drawne ; whereby it comes to passe, that they are againe displaced, and with great torment of paine, fall from their former seate. This contraction of the muscles is towards their originall.

CHAP. XXVII.

Certaine Documents concerning the parts, whereon the Patient must necessarily rest, whilest he lyes in his bed.

The naturall faculties languish in the parts by idlenesse, but are strengthened by action.



How, and what ulcers happen upon the fracture of the legge, to the rumpe & heele.

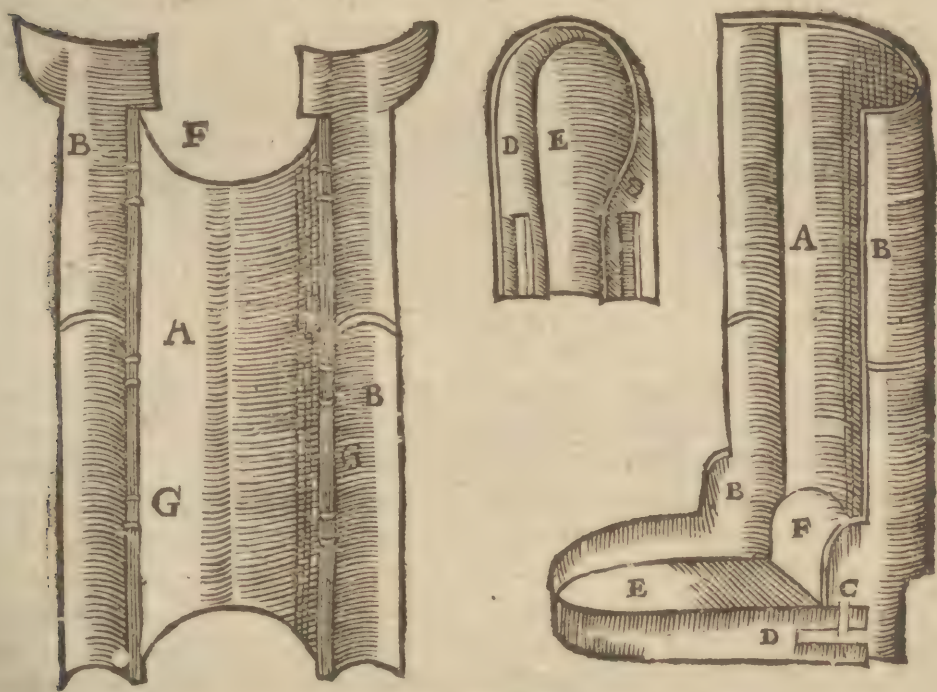
Hose who have their Legge or the like bone broken, because they are hindered by the bitternesse of paine, and also wish for their cure or consolidation, are forced to keep themselves without stirring, and upon their backs in their beds for a long time together. In the meane space, the parts whereupon they must necessarily lye, as the heele, backe, holy-bone, rumpe, the muscles of the broken thigh or legge remaine stretched forth and unmoveable, set at libertie from their usuall functions. Whereby it comes to passe, that all their strength decays, and growes dull by little and little. Moreover also, by the suppression of the fuliginous and acride excrements, and want of perspiration, they grow preternaturally hote ; whence defluxion, an abscesse and ulcer, happen to them, but principally to the holy-bone, the rumpe and heele : to the former, for that they are defended with small store of flesh ; to the latter, for that it is of more exquisite sense. Now the ulcers of these parts are difficultly healed, yea, and oftentimes they cause a gangrene in the flesh, and a rottennesse and mortification in the bones there-under, and for the most part a continued fever, *delirium*, convulsion, and (by that sympathie which generally accompanies such affects) a hickering. For the heele and stomacke are two very nervous parts, the latter in the whole bodie thereof,

thereof, and by a large portion of the nerves of the sixth conjugation; but the other by the great tendon passing under it, the which is produced by the meeting, and as it were growing together of the three muscles of the calfe of the legge. All which are deadly, both by dissipation of the native heat by the feverish, and that which is preternaturall; as also by the infection of the noble parts, whose use the life cannot want, by carrion-like vapours. When as I considered all these things with my selfe, and (become more skillfull by the example of others) understood how dangerous they were, I wished them now and then to lift my heele up out of the bed; and taking hold of the rope which hung over my head, I heaved up my selfe, that so the parts, pressed with continuall lying, might transpire, and be ventilated. Moreover also I rested these parts upon a round cushion, being open in the middle, and stuffed with soft feathers, and layd under my rumpe and heele, that they might be refreshed by the benefit and gentle breathing of the ayre: and I did oft-times apply linnen clothes, spread over with *unguentum rosatum*, for the allwa-ying of the paine and heat. Besides also, I devised a Casse of Lattin, wherein the broken legge being layd, is kept in its place, farre more surely and certainly than by anie Junks; and moreover also, it may all be moved to and againe at the Patients pleasure. This Casse will also hinder the heele from lying with all its bodie and weight upon the bed, putting a soft and thicke boulder under the calfe, in that place where the Casse is hollow: besides also, it armes and defends it against the falling downe and weight of the bed-clothes, having a little arch made over and above, of the same matter. All which shall bee made manifest unto you by the following figure.

Remedies for
the prevention
of the foresaid
ulcers.

The use of a
Lattin Casse.

The figure of a Casse.



- A A. Shew the bottome or belly of the Casse.
 B B. The wings or sides to be opened and shut at pleasure:
 C. The end of the wings, whereto the sole or arch is fitted.
 D D. The Arch.
 E E. The Sole.
 F F. An open space, whereat the heele hangs forth of the Casse.

Now it remaines, that I tell you what remedies I applyed to the Abscesse which happened upon my wound. When therefore I perceived an Abscesse to breed, I composed a suppurative medicine of the yoalks of egges, common oyle, turpentine, and

A suppurative
medicine,

and a little wheat floure, and I used it untill it was opened : then to cleanse it I used this following remedie.

A dete. five.

Catagmatick
powders have
power to cast
forth the scales
of bones.

The causes
both efficient
and materiall
of a *Callus*.

Rx. Syrupi rosati & terebinth. veneta, an. ʒii. pulveris radice ireos florentia, aloes, mastiches, farina hordei, an. ʒʒ. incorporentur omnia simul & fiat mundificativum : but I had a care, that the place, whereat I conjectured the quite severed scales of the bones must breake forth, should be filled with tents made of sponge or flaxe, that so, by this meanes, I might keep the ulcer open at my pleasure. But I put into the bottome of the ulcer catagmatick and cephalicke powders, with a little burnt Alum to procure the egress of the formerly mentioned scales. These at length cast forth, I cicatrized the ulcer with burnt Alum. For, this having a drying and astringent facultie, confirms and hardens the flesh, which is loose and spongie, and flowing with liquid *sanies*, and helps forwards natures endeavour in cicatrization. For, the fragments of the bones, they, by reason of their naturall driness and hardness, cannot be joyned and knit together by themselves without a *medium*: but they need a certaine substance, which, thickning and concreting at their ends, doth at length glue them together, and (as it were) fasten them with soder. This substance hath its matter of the proper substance and marrow of the bones ; but the forme from the native heat, and emplastick medicines, which moderately heat. For, on the contrarie, these medicines, which, by their too much heat, doe discusse and attenuate, doe (as it were) melt and dissolve the matter of the *Callus*, and so hinder the knitting. Wherefore for this purpose, I would wish you to make use of the following emplasters, of whose efficacie I have had experience : for, hence they are called knitting or consolidating plaisters.

Medicines con-
ducing to the
generation of a
Callus.

Rx. olei myrtill. & rosarum omphac. an. ʒʒ. rad. althea ʒii. rad. fraxini, & fol. ejusdem, rad. consolida majoris & fol. ejusdem, fol. salicis an. m. i. fiat decoctio in sufficienti quantitate vini nigri, & aqua fabrorum, ad medietatis consumptionem, adde in collatura pulveris myrrha & thuris an. ʒʒ. adipis hirci ʒʒ. terebinth. lota ʒiiii. mastiches ʒiii. lithargyri auri & argenti an. ʒii. boli armenia, & terra sigillata, an. ʒi. ʒ. minii ʒvi. cera alba quantum sufficit, fiat emplastrum, ut artis est. In stead hereof you may use the blacke emplaister, whereof this is the description.

The black
plaister.

Rx. lithargyri auri ʒi. olei & aceti ʒii. coquantur simul lento igne donec nigrum & splendens reddatur emplastrum, & non adhereat digitis. Or else, *Rx. olei rosar. & myrtill. an. ʒii. nucum cupressi, boli armen. sanguinis drac. pulveris arietini an. ʒʒ. emplastri diachalciteos ʒiiii. liquefaciant simul, & fiat emplastrum secundum artem.* In dete of these, you may use a Cere-cloth, or tela Gualteri, whereof this is the description.

The descripti-
on of a Spava-
drapum or
cere-cloth.

Rx. pulveris thuris, farina volatilis, mastiches, boli arm. resina pini, nucum cupressi, rubia tinctorum, an. ʒii. sevi arietini & cera alba an. ʒʒ. fiat emplastrum : into which (whilest it is hote) dip a warme linnen cloth, for the forementioned use. *Emplastrum Diacalcithios*, by the common consent of all the Ancients, is much commended for fractures : but it must undergoe different preparations, according to the condition of the time ; for in summer it must be dissolved in the juice of plantaine and nightshade, lest it should heat more than is fit. It is convenient, in the *interim*, to have regard to the temper of the affected bodies ; for neyther are the bodies of children to be so much dried as these of old men : otherwise, if such drying medicines should be applyed to yong bodies as to old, the matter of the *Callus* would be dissolved, it would be so farre from concreting ; wherefore the Surgeon must take great heede in the choyce of his medicines. For, often times remedies, good of themselves, are by use made not good, because they are used and applyed without judgment: which is the cause that oft times pernicious accidents happen, or else the *Callus* becomes more soft, hard, slender, crooked, or lastly concretes more slowly by the great error, and to the great shame of the Surgeon.

Medicines
good of them-
selves, not good
by event.

CHAP. XXVIII.

By what meanes we may know the Callus is a breeding.

When I knew that my legge begunne to knit, when as lesse matter than was usuall came from the ulcer, when the paine slackened, and lastly, when as the convulsive twitchings ceased; which caused me to judge it fit to dresse it seldomer than I was used to doe. For, by the frequent deterfion in dressing an ulcer, whilst a *Callus* is breeding, the matters whereof it is to be made, are drawne away and spent, which are (as they terme them) *Ros*, *Cambium*, and *Gla-*
ten, which are the proper and genuine nourishments both of the bony, as also of the fleshie substance. I by other signes also conjectured the breeding of the *Callus*, to wit, by the sweating of a certaine dewie blood out of the edges and pores of the wound, which gently dyed and bedewed the boulders and ligatures, proceeding from the efflux of the subtler and gentler portion of that matter, which plenteously flowed downe for the breeding of a *Callus*. As also, by a tickling and pleasing sense of a certaine vapour, continually creeping, with a moderate and gentle heate, from the upper parts even to the place of the wound. Wherefore thence forwards I somewhat loosened the ligation, lest, by keeping it too strait, I should hinder from entring to the fragments of the bones, the matter of the *Callus*, which is a portion of the blood, temperate in qualitie, and moderate in quantie. Then therefore I thought good, to use nourishments fit to generate more grosse, thicke and tenacious blood, and sufficient for generating a *Callus*; such as are the extremities, tendinous and gristly parts of beasts, as the heads, feete, legges and eares of Hoggs, Oxen, Sheepe, Kids; all which I boyled with Rice, French Barley, and the like, using somwhiles one, somwhiles another, to please my stomack & palate. I also somtimes fed upon frumity, or wheat sodden in Capon broth with the yoalks of egges; I drank red, thicke and astringent wine, indifferently tempered with water. For my second course, I ate chesnuts and medlars: neyther doe I without some reason, thus particularize my diet: for that grosse nourishments, especially if they be friable and fragile, as beefe is, are alike hurtfull (for as much as pertaines to the generating of a *Callus*) as light meats are. For that makes the *Callus* too dry, these too tender. Wherefore Galen pronounces these meats only fit for generating a *Callus*, which are neyther fragile nor friable, neither serous and thin, nor too dry; but indifferent grosse, and also viscide, fat and tough. These meats, digested by the stomacke into *Chilus*, are sent into the guts, and from hence, by the mesaraick veines, into the Gate-veine, and the hollow part of the Liver, thence into the Hollow-veine, and so into the Veines dispersed over all the bodie and the parts thereof. There are also some of these veines which carrie blood into the bones; but in the large cavities of the bones is marrow contained, as in the small a certaine marrowie substance, proportionable thereto, being their proper nourishment. The generation of marrow is from the grosser portion of the blood, which flowes into the greater cavities of the bones by larger veines and arteries, but into the lesse by lesser, which end in their pores and small passages. For, in large bones you may observe large and apparent passages, by which the veines and arteries enter for the forementioned use. By the same waies the nerves also insinuate themselves, from whence proceeds a membrane which involves the marrow of the bones, the which by that means is endued with most exquisite sense, as experience teacheth; which is the cause that makes many beleeve, that the marrow hath sense of feeling, because the membranes thereof being hurt cause most bitter paine. Therefore out of the marrow and the proper substance of the bone, there sweats a certaine grosse and terrestriall juice, whereof, by the power of the assimilating facultie, which serves in stead of the formative, a *Callus* growes and knits. Simple fractures of the legge are usually knit in fiftie daies; but through the occasion of the wound and the scales quite broke off, and other accidents which befell mee, it was three whole months before the fragments of the bones were perfectly knit, and it was also another month, before I could goe upon

When the *Callus* is breeding the ulcer must be seldome drest.

Hipp. sent. 433
sect. 1. de fract.

Meats fit for
generating a
Callus.

Lib. 6. meth. cap. 9.

Why the marrow may seeme to have sense of feeling.

In what space the legge is usually knit.

my legge without the helpe of a Crutch. Going was painefull to me for some few daies, because the *Callus* had taken up some place of the muscles : for, before my former freedome of motion could returne againe to the broken and knit part, it was necessarie, that the Tendons and Membranes should separate themselves by little and little from the scarre. In the performance of all these things, I had the diligent and faithfull assistance amongst the Surgeons, to omit Physicians, of Anthonie Portall, the Kings Surgeon.

CHAP. XXIX.

Of those things which may hinder the generation of a Callus, and how to correct the faults thereof, if it be ill formed.



AVING already spoken of the signes of a *Callus* beginning to concrete, of its generation and the manner thereof: it now remaines, that wee treat of those things which hinder the generation thereof; and what on the contrarie helpe forwards the conformation and concretion thereof. Now these things which either wholly hinder, or else retarde the generation of a *Callus*, have a strong and powerfull discussive and attenuating facultie; or else they are unctuous, oyley and moist. For, by such the juice, wherof the *Callus* ought to be, is eyther melted and consumed, or else growes soft, and is relaxed. But on the contrarie, those things which helpe forwards a *Callus* must bee drying, incrassating, thickening, hardening and emplasticke, moderately hot and astringent. But for moist and relaxing medicines, they ought to have no place here, unlesse when it happens that the *Callus* is ill formed, that is, too thicke, or crooked, or otherwise ill shapen, whereby it may be wasted and broken, so to bee restored againe after a better manner. Yet notwithstanding, such things are not to be attempted, unlesse when the *Callus* is yet Greene, and so depraved, that the fault thereof doth very much pervert the native conformation of the part, and exceedingly offend the action. Then therefore in such a case, the place must be fomented with a decoction of a sheeps head and guts, wherein shall be boyled the roots of Marsh-mallows, of Brionie, the seeds of Line, of Fennugrecke, Pigeons dung, Bay-berries, and the like. You shall also use this following oyntment and plaister.

Rx. unguenti de Althæa ʒ iiiii. olei liliorum. & axungia anseris an. ʒ i. aqua vitæ parum, liquefiant simul, fiat linimentum quo liniatur pars. Then apply this following emplaister.

Rx. emplastr. de Vigo cum mercurio, cerati æsyptati descriptione Philagrii, an. ʒ iii. olei anethini & liliorum an. ʒ i. liquefiant omnia simul, fiat emplastrum, let it bee spread upon leather for the foresaid use. When by this meanes the *Callus* shall seeme to be sufficiently mollified, it shal be broken, and the bones restored to their naturall state, and the cure of the fracture to be followed as at the beginning. If the *Callus* be become too hard through age, it is better not to break it, but to let it alone, lest some worse accident befall the Patient. For it may so fall out, that by your labouring to breake it, the bone may breake in some other part, before it break in that which is knit by the *Callus*. Therefore the discreet Patient had rather live lame, than for eschewing it, to undergoe the hazzard of his life. If the *Callus* be too grosse, it shalbe diminished (if it be as yet fresh) with emollient, resolving, and powerfully astringent medicines, which have force to dissolve, dry and exhaust. It will also bee good strongly to rubb the *Callus* with oyle of Bayes, wherein Salt-peter, or some other kinde of Salt hath been dissolved, then wrapped about with a Rowler, to binde it very straitly, putting a leaden plate thereon, whereby the flowing downe of the nourishing humor into the part, may be forbidden; that thus by little and little the *Callus* may decay and diminish. If on the contrarie, it any waies happen, that the *Callus* be more thin and slender, or grows more slowly, for that it is too straitly bound, or because the idle part is longer kept in quiet than is fit, without exercising of its proper function (which cause is to be reckoned amongst the chiefe causes of the leane-

ness

Discussing and unctuous medicines hinder the generation of a *Callus*.

What helps forward the generation thereof.

What *Callus* must not be broken, though distorte, or otherwise ill conformed.

The causes of too slender a *Callus*.

ness, even for this reason, for that exercise stirres up the native heat of the part, the worker of digestion and nutrition) or else for that they feed upon such nourishments as offend in quality, or quantity, or both, or for that the ligature used to the part is too often loosed, or because the part its selfe is too hastily and before the time put to undergoe solid offices and motions. According to the variety of causes, medicines shall bee applyed. For if the ligature of the part bee too strait, it shall bee loosed, yea verily the fractured place, the ligature being taken away, shall be quite freed from ligation, and a new kind of ligature must bee made, which must be rowled downe from the roote of the vessels, that is, from the armpitts, if the arme; or from the groine, if the legge be broken, to the fracture: yet so, as that you may leave it untouched or taken in, for thus the blood is pressed from the fountain and spring, and forced into the affected part, by a way quite contrary to that, whereby we have formerly taught in feare of inflammation, to hinder it from entrance into the affected part. Also gentle frictions and fomentations with warme water may be profitably made, from which you must then disist when the part shall begin to grow hot and swell. If any too long continue these frictions and fomentations, hee shall resolve that which he hath drawne thither. For this we have often times observed, that frictions & fomentations have contrary effects, according to the shortness and continuance of time. Pications wil also conduce to this purpose, and other things which customarily are used to members troubled with an *atrophia*, or want of nourishment.

Remedies
therefore.

When we must
desist from fo-
menting and
frictions.

CHAP. XXX.

Of fomentations which be used to broken bones.

Divers fomentations are used to broken bones for severall causes. When we use warme water for a fomentation, we meane that, which is just between hot and cold, that is, which fees luke warme to the hand of the Physitian and Patient. A fomentation of such water used for some short space doth moderately heat, attenuate and prepare for resolution, the humor which is in the surface of the bodie, it drawes blood and an alimentarie humor to the part labouring of an *Atrophia*; it asswages paine, relaxes that which is too much extended, and moderately heats the member refrigerated through occasion of too strait binding, or by any other means. On the contrarie, too hot fomenting cools by accident, digesting and discussing the hot humor which was contained in the member. We meane a short time is spent in fomenting, when the part begins to grow red and swell; a just space, when the part is manifestly red and swolne: but we conjecture, that much or too much time is spent thereon, if the rednesse, which formerly appeared, goe away, and the tumor, which lifted up the part, subside. Also in fomenting, you must have regard to the bodie whereto it is used. For if it be plethorick, an indifferent fomentation will distend the part with plenty of superfluous humors; but if it be leane and spare, it will make the part more fleshie and succulent. Now it remaines, that we say somewhat of the fracture of the bones of the feet.

Warme water.

The effects
thereof.

Notes of short,
just, and too
long fomenting.

Fomentations
hurt plethorick
bodies.

CHAP. XXXI.

Of the fracture of the bones of the feet.

He bones of the Instep, back and toes of the feet, may bee fractured as the bones of the hands may. Wherefore these shall bee cured like them, but that the bones of the Toes must not be kept in a crooked posture, as the bones of the fingers must, lest their action should perish or bee depraved. For as we use our legges to walk, so we use our feet to stand. Besides also the Patient shall keep his bed untill they be knit.

Why the fractur-
red bones of
the foot must
be kept in a
strait posture.

The end of the fifteenth Booke.

Ddd 2

OF

592

IXXYAHO



OF DISLOCATIONS, OR, LUXATIONS.

THE SIXTEENTH BOOKE.

CHAP. I.

Of the kinds and manners of Dislocations.



Dislocation is the departure or falling out of the head of a bone from its proper cavities, into an unaccustomed place besides nature, hindring voluntarie motion. There is another kinde of Luxation, which is caused by a violent distention, and as it were a certaine divarication, and dilatation, or extension into length and breadth of the ligaments, and all the nervous bodies, which containe, strengthen, and binde together the joynts. Thus those who have beene tormented and racked, have that thick ligament which is in the

What a Luxation properly so called is.
What a Luxation not properly so called is.

inner cavities of the huckle bone too violently extended: Those who have suffered the Strappado, have the ligaments, encompassing the articulation of the Arme-bone, with the shoulder-blade, forcibly and violently distended. Such also is their affect whose foot is strained by slipping. There is a third kinde of Luxation, when as those bones which are joyned contiguous, and one (as it were) bound to the sides of another, gape or flye asunder: as in the Arme, when the ell parts from the wand; in the legge, when the one focile flies from the other: yet this may be referred to the second sort of dislocations, because it happens not without dilatation, or else the breaking of the ligaments. There is also a fourth added to these, as when the *Epi-physes* and heads of bones are plucked from the bone whereon they were placed or fastened: which improperly called kinde of Luxation, hath place chiefly in the bones of yong people, and it is knowne by the impotencie of the part, and by the noise and grating together of the crackling bones when they are handled. Now the bones of yong folks are also incident to another casualtie: for as the bones of old people are broken by violence by reason of their driness and hardnesse, thus the bones of children are bended or crooked in by reason of their naturall softnesse and humiditie.

The third kind of Dislocation.

The fourth.

C H A P. II.

Of the differences of Dislocations.

What Luxations are simple

What compound.

What a complete Luxation is.

What a subluxation or straine.



Some Dislocations are simple, others compound. We terme them simple which have no other preternaturall affect joyned with them; and such compound, as are complicated with one or more preternaturall affects; as when a dislocation is associated with a wound, fracture, great paine, inflammation, and an abscesse. For, through occasion of these we are often compelled so long to let alone the luxation, untill these bee remitted of themselves, or by our art. Some Dislocations are complete and perfect, as when the bone wholly falls out of its cavities: other some are imperfect, as when it is only lightly moved, and not wholly fallen out; wherefore we only call them subluxations or strains. Differences of Luxations are also drawne from the place: for sometimes the bone is wrested forwards, otherwhiles backwards, upwards, downwards; somewhiles it may be wrested, according to all these differences of site, and otherwhiles onely according to some of them. Differences are also taken from the condition of the dislocated Joynt in greatnesse and littlenesse, from the superficialie or deepe excavation of the *sinus* or hollownesse; and lastly from the time, as if it be lately done, or of some long continuance. I have judged it fit to set downe all these, for that there are severall indications of curing, according to the varietie of each of these, as we shall teach hereafter.

C H A P. III.

Of the causes of Dislocations.

Internall causes of dislocations.



Here are three generall causes of Luxations, internall, externall, and hereditarie. The internall are excrementitious humors and flatulencies, which, settling into the joynts with great force and plentie, doe so make slipperie, soften & relaxe the ligaments which binde together the bones, that they easily fall out of their cavities; or else they so fill and distend these ligaments, and make them so short, that being contracted, they also contract the *appendices* of the bones from whence they arise, and so pluck them from the bone whereon they are placed, or else draw the heads of the bones out of their cavities, chiefly if the violence of a noxious humor doth also concur, which possessing and filling up the cavities of the joynts, puts them from their seats, as it oft times happens to the joynt of the hip by *Sciaticae*, and to the *Vertebra* of the spine, by whose Luxation people become gibbous, or otherwise crooked. But externall causes of Dislocations are, falls from high, bruising and heave blowes, the Rack, Strappado, slipping in going, and all such like things, which may force the heads of the bones to fly out of their seats, or cavities, which also happens sometimes to infants in their birth, when as they are too carelesly and violently drawne forth by the Midwife, so that eyther their armes or legges are put out of joynt. Hereditarie causes are such as the Parents transfuse into their off-spring: hence it is, that crooked not necessarily, but often times are generated by crooked, and lame by lame. The truth whereof is evident by daily experience. Besides also Hippocrates himselfe averres, that infants in the very wombe may have their Joynts dislocated by a fall, blow and compression, & by the too much humidity and loosenes of the Joynts: whence also we see many crooke legg'd and footed from their nativitie; so that none need marvell or make any doubt hereof. We have read it observed by Galen *In librum de Artic.* that children may have impostumes in their mothers wombs, which may cast forth quitture, the ulcers being opened of their own accord, and be cicatrized by the only benefit of nature. It also happens to many from their first conformation, that the cavities of their Joynts are lesse deprest than they should bee, and that their

Externall causes.

Hereditary causes.

See 3. sent. 88.
& 94. sent. 82.
4. sent. 3. & 4.
lib. de art.

Children may have impostumes in their mothers wombs,

their verges are more dilated than they ought to be ; whereby it happens that the heads of the bones can the lesse enter into them. It falls out, that othersome have the ligaments, appointed by nature for fastening together the bones of the joynt, whether inserted or placed about, so weake, that from their first originall they are not of sufficient strength, or else abound with much phlegme, eyther bred together with them, or flowing from some other place; so that by their too much slipperinesse they lesse faithfully containe the knittings or articulations of the bones. In all these, as the bones are easily dislocated, so they may presently be easily restored without the assistance of a Surgeon, as I have sometimes observed in some.

CHAP. IIII.

The signes of dislocations.

Some of the signes whereby we come to the knowledge of a luxated bone, are common to all dislocations; others are proper only to severall Luxations. It is a common signe, that there is alwaies a tumor in that part whereto the bone runnes, and a hollownesse on that side from whence it is flowne. Now the proper signes shall be shewed, when as we come to treat of the particular kindes of Luxations.

The common signe of all dislocations.

We know a perfect Dislocation by the lost action of the part, that is to say, the lost motion; paine also breeds a suspicion of a dislocation: for the head of the bone, which (moved out of its place) is forced into another, presses the flesh, and distends the nerves also moved out of their place. Hereto also conduces the comparing of the sound joynt with that which is hurt, in which collation, it is fit the sound part, which is compared with the hurt, be no waies, neyther by nature nor any accident, wronged, nor deformed, nor withered or decayed, nor swolne above measure, otherwise it may cozen and deceive you, if you bee lesse warie. Labour and difficultie of action in moving, is a signe of an uncomplete Luxation, or strain. Now we thus know, that the ligaments, serving to the connexion of the articulations, are extended and relaxed, if the head of the bone, pressed with your fingers, be easily driven unto the contrary part, and suddenly flye thence backe againe; if thrusting your finger into the joynt, it easily enter, nothing resisting it, as though all were empty within; if the motion be difficult, or none at all.

Signes of an unperfect dislocation.

CHAP. V.

Of Prognosticks to be made upon luxations.

All Joynts may bee perverted or luxated, but all of them cannot in like manner be restored. For the head may be dislocated, but therupon present death ensues, by reason of the compression of the whole spinall marrow presently at the originall thereof; such also is the dislocation of a *vertebra* of the spine, and of the Jaw-bone, which, slipped forth on both sides, hath caused inflammation, and a great tumor before that it be set. The bones of other Joynts, as they are more or lesse dislocated, and moved out of their seats, so may they bee more easily or difficultly restored. For, by how much they are the lesse moved out of their places, by so much they are the more quickly, and by how much they are the further, by so much they are the more slowly and difficultly set. Also an indication, taken from the figure of the luxated bone, gives a signe of the easie or hard restoring of the dislocation; as in the Arme, by how much the bones be the more easily dislocated, by so much once luxated they are the more easily restored. Bones doe not easily fall out of joynt in fleshie bodies; but when they chance to be put out, they are not easily got in againe. For in such, the articulation is straitly on everie side held in by the thicknesse of the muscles, and the plenty of the

What luxations be incurable.

Why those bones which are hardly dislocated, are hard to be set.

the fat lying thereabouts. On the contrarie, such as are leane, especially those who formerly have beene more fat, have their joynts more laxe, whereby it comes to passe, that their bones may easily be put forth of joynt : besides also, through the default of the digestive facultie, they have their joynts replete with mucous humors ; whence it is, that the heads of the bones, as standing in a slipperie place, are the lesse stable, as it is recorded by Hippocrates. But slender bodies, which are naturally dry, compact and dense, have their muscles and ligaments more strong and dry ; wherefore their bones are the more difficultly displaced, and displaced, the more difficultly set. Some bones, joyned amongst themselves, doe sometimes flye asunder, as when the shoulder blade flies from the collar-bone at the *Acromion*, and in the Arme the Ell from the Wand, and in the Legge the one focile from the other, and the Heele-bone from the Ankle. Bones thus separated will never be joyned together againe, will never recover their former comely figure, never their strength of action. For, then it most usually happens, that the ligaments are either broke asunder, or else resolved and become laxe. Those whose bones are dislocated by an externall cause, they, after they be set, may easily fall out againe, for that the ligaments, moystened and bedewed with an excrementitious humor, cannot firmly hold them : oft-times the ligaments are not wholly broken, but onely in some portion thereof ; and hence the action of the part either perishes, or is debilitated. Also that dislocation is uncureable, when as the ligaments, steeped and swolne up with an excrementitious humiditie, are so much shortened and contracted in their length, as they have acquired in their breadth : and thus they draw away and plucke off the *appendices* of the bones from whence they arise, and by reason the bone and the *appendix* doe enter and receive each other by manie cavities and prominencies, therefore they cannot, by how skilfull hand soever they be handled, be againe fitly placed and put together. Old and inveterate dislocations, wherein a tough humor possessing the cavities is concrete in stead of the head of the bone, are not to be restored ; as neither when the heads of the luxated bones have by continuall attrition made themselves a new cavities in the neighbouring bone : neither if they be restored, is the restitution firme and of continuance ; because the naturall cavities is possessed by another matter, and the new made neare thereto cannot well and faithfully containe the received head of the bone. Those who have their shoulder dislocated, may use their hand for many actions, as well as the opposite sound hand ; for the weight of the bodie is not sustained by the hands, as it is by the legs. And by how much the hand is the more exercised, by so much the arme becoms the more corpulent. Contrarily, if the thigh-bone bee dislocated, especially if it bee wrested inwards, the whole legge quickly decays by an *atrophia*, because the part doth absolutely lose all motion : for by the opinion of Hippocrates, the performance of the proper action encreases strength, and makes the part in better plight ; but idlenesse debilitates and makes it leane. If a great wound and fracture bee joyned with a luxation, there is danger, lest while wee use extension for restoring the part, we draw the nerves too violently, and so break the nerves, veines and arteries, whence would ensue feare of inflammation, convulsion, and other malignant symptoms. Wherefore Hippocrates judges it better in such a concurrence and complication of preternaturall affects, absolutely not to meddle at all with the setting of the dislocated bone : for, by attempting the restitution, certaine death, but by omitting it only lameness is to be feared. Everie dislocation must be restored before inflammation come ; but if it be already present, you must presently be carefull to take it away. For other things, let the Patient rest, lest if the affect be irritated, the increase and excess of paine cause a convulsion, gangrene, and lastly death, as I remember I have sometimes observed. Therefore when inflammation, and other malignant symptoms shall be mitigated and corrected, then may you endeavour to restore the luxation, especially if the habit of the bodie and member affected may admit it. For if the bodie be slender, delicate and tender, then the restitution will bee more speedy and facile. But on the contrarie, more difficult, if it be grosse and compact ; And let thus much suffice for prognosticks in Luxations.

Sect. 1. de artic.
sent. 29.

Celsus lib. 8.
cap. 11.

Why the plucking of an appendix from a bone is uncureable.

Hipp. sent. 88.
sect. 3. de art.

Sent. 10. sect. 5.
lib. 6. epid. & sect.
3. de art. sent 88.

You must not endeavour to set an inflamed joynt.

C H A P. V I.

of the generall cure of Dislocations.

Or all that I have heretofore delivered the generall methode of curing Fractures and dislocations, yet it shall not bee unprofitable to repeat here in this place, those things which may be accommodated to this Treatise of curing Luxations. Now he that will cure Dislocations, must have regard to five intentions, which it will be fitting to performe in order. The first is, of Holding; The second, of Drawing or Extending; The third, of Forcing in; The fourth, of Placing in convenient figure and site; The fifth, of Correcting the concomitant, or following symptomes.

Five intentions
in curing dislo-
cations.

The first scope, which we said was of Holding, is meant eyther of the whole body, or else of some part thereof only. The whole bodie must bee holden by the strong embracement of your servant or attendant, when as the shoulder, the *vertebra*, or the thigh-bones are dislocated. But in the dislocation of the Collar-bone, elbow, hand, knee, or foote and legge, it is sufficient onely to hold the part straitly in your hands. There is necessitie of holding eyther the bodie, or else some part thereof, lest, while the dislocated bone is extended, the whole bodie follow by continuance of parts, if there be nothing which may hinder: for if the bodie should follow him that drawes or extends, all the work-masters labour and endeavour to restore it, is to no purpose. The use of the second scope, that is, of Drawing or Extending, is, that there may be a free space and distance betweene the luxated bones, by which distance the dislocated bone may the more freely be forced into its cavitie. But the manner of drawing or extending is different in quantity and manner, according to the various strength of the muscles and ligaments, and dislocation of the bones to this or that part. Therefore this worke is almost alwaies performed by the hands; which when they cannot suffice, we must use the assistance of instruments and engins, whose figures you shall see hereafter delineated. But that you may not doe amisse, you may so farre use extension, untill the head of the bone be brought just against its cavitie. When the Surgeon hath brought it to this passe, then must he hasten to the third intention, which is, to put the head of the bone first moved and gently bended, into its cavitie. For hee must have a speciall care, that hee force it no other way than into its proper cavity: for it would be dangerous, lest he should turne it from one extreme into another, and the bone, for examples sake, of the thigh, which was dislocated into the forepart by too violent forcing, by exceeding the middle cavitie, may be driven and dislocated into the hinder part. To shun this, the bone shall be put backe the same way that it fell out, which may bee easily done in fresh and late happening dislocations. We understand that the bone is set by the noyse, or as it were a popp, or sound like that, which solid and sounding bodies, being fully and forcibly thrust into their cavities, do make; by the similitude and consent in figure, magnitude and all conformation of the affected part with the sound, and lastly, by the mitigation of the paine. The fourth scope, which is of the convenient site of the part, must bee so fulfilled, that the bone after it is set may bee kept in its cavity, and not flye forth againe. Wherefore if the arme be dislocated, it shall be carried bound up in a scarfe: if the thigh, knee, legge, or foote be luxated, they shall be fitly layd in a bed; but in the *interim* the Surgeon, presently after hee hath set them, shall have a care, that the affected joynt be wrapped about with stoups and clothes, or compresses steeped in rose vinegar, and spread with convenient medicines; then let it be bound with an artificiall deligation, rowling the ligatures unto the part contrary to that whereto the dislocated bone flew. For the which purpose thicker bouldsters shall be there applied whence the bone came out, otherwise there will be some danger, lest it should be againe displaced: when these things are done, he shall for foure or five dayes space meddle with nothing about the Dislocation, unlesse paine; or some such like symptome happen. For then the fifth scope will call us from that cessation and rest, which is, to correct the symptomes and complicate

The benefit of
holding the
member in dis-
locations.

The use of ex-
tension.

The manner of
setting it, or
putting it into
its place.

Signes that the
bone is set.

The benefit of
fit placing the
member.

The manner of
binding up the
set joynt.

The cure of
inveterate
luxations.

complicate affections, as paine, inflammation, a wound, fracture, and others, whereof wee have spoken abundantly in our Treatise of Fractures. Before wee attempt to set inveterate dislocations, wee must endeavour to humect the ligaments, tendons and muscles by fomentations, cataplasmes, emplaisters, liniments, and other remedies, that so these parts may be more obedient to the Surgeons hand: then must the dislocated bones be moved, with a gentle motion up and down, to and againe, that by this meanes the excrementitious humor, which by continuance of time hath flowed downe, may waxe hot, be attenuated, resolved or made slipperie, and also the fibres of the muscles, ligaments, and nervous bodies, placed about the joynt for the defence thereof, may be loosed, that so they may presently be more freely extended. But if a great swelling, paine and inflammation urge, we must first think of asswaging and curing them, then of the restoring the Dislocation.

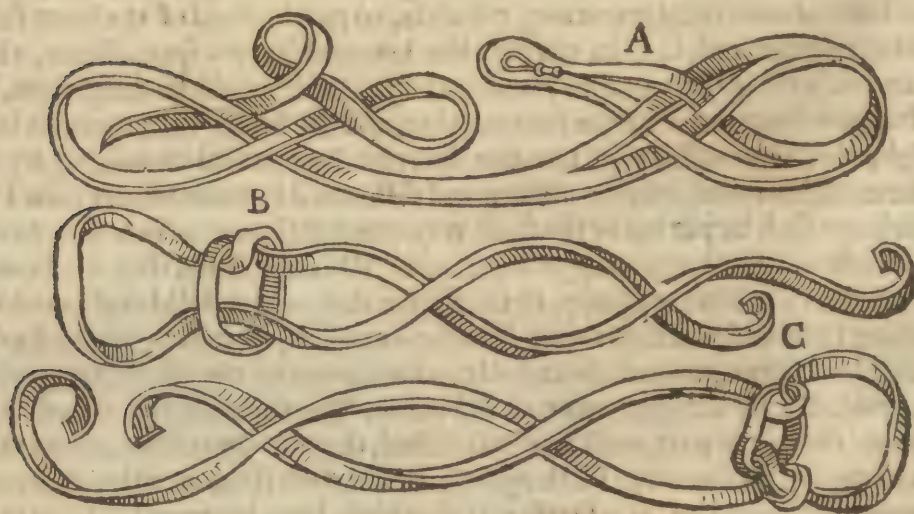
CHAP. VII.

The description of certaine engines, serving for the restoring of Dislocations.

These ligatures are not for deligation, but extension.

BEfore I come to the particular kinds of Dislocations, I thinke it not amisse to describe three sorts of Bandages, and give you their figures, as those which are most fit to hold and extend Dislocations. The first Ligature, designed by this letter *A*, is made for holding the member. The second, marked with the letter *B*, is fit for drawing or extension, and consists of one knot. The third, whereto the letter *C* is put, consisting of two knots, is to hold or binde more straitly.

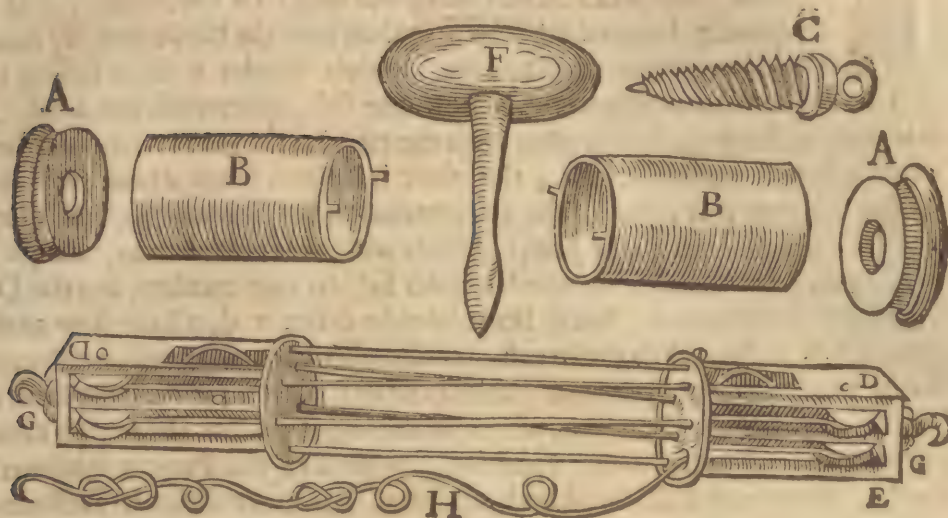
The delineation of the three Ligatures.



I have thought good also to delineate the following Engine, made for to draw and extend more powerfully, when the hand will not serve. It is made like a Pulley, marked with these letters *DD*. Within this there lye hid three wheelles, through whose furrowes runnes the rope which is to be drawue, marked with this letter *H*. At the ends of the Pulley are hooks fastened, the one of which is to fasten the Pulley to a Poste, the other is to draw the ligature fastened to the part. The Boxes or Cases wherein the Pulley is kept, is maked with *BB*. Their covers are marked with *AA*. A screw pin which may be twined, and so fastened to a Poste, that so one of the ends of the Pulley may be hooked thereto, is signed with *C*. A Gimlet

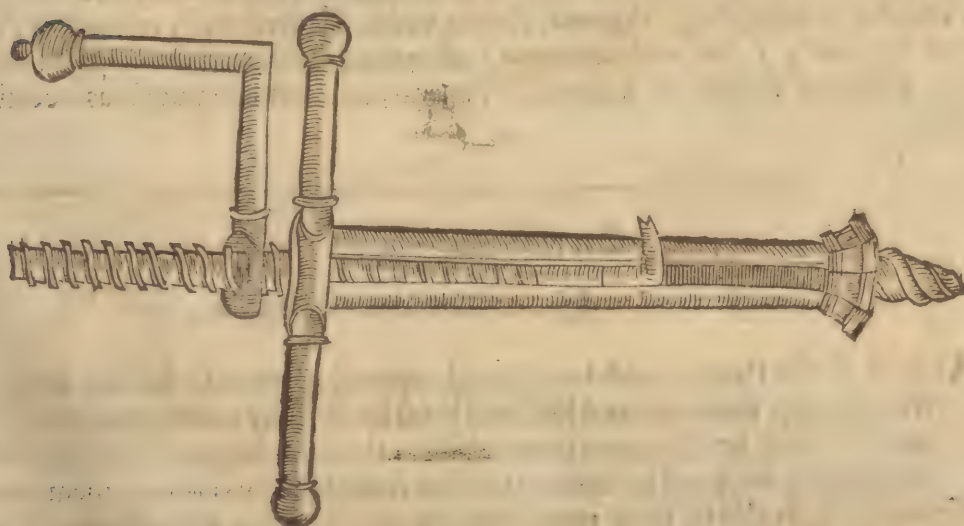
let (marked by F.) to make a hole in a Poste, so to let in the screw pin. You may see all these things exprest in this following figure.

A Pulley:



Some Practitioners in stead of this Pulley make use of the hereafter described Instrument, which they terme *Mannbrium versatile*, or a Hand-vice. The end thereof is fashioned like a Gimblet, and is to be twined into a Poste. Within that handle lyes a screw with a hooked end, whereto the string or ligature must be fastened. Now the screw-rod or male-screw runnes into the female by the twining about of the handle: and thus the ligature is drawne as much as will suffice, for the setting the dislocated bone.

Mannbrium versatile, or, A Hand-vice:



Having delivered these things thus in generall, now I come to treat of the Luxations of each part, from the Jaw-bone even to the toes of the feet.

CHAP. VIII.

Of the Dislocation of the Jaw-bone.

The causes.

Differences.

Signes that on-
ly one part is
dislocated.Signes that
both sides are
dislocated.

Prognosticks.

Why death
quickly ensues
upon the dislo-
cation of both
sides of the jaw.An astringent
medicine.

The Jaw-bone is dislocated by many occasions, and not seldome by yawning, and other more strong openings of the mouth. It is more frequently luxated into the fore, than into the hinde part, by reason of the mammillarie additaments, which hinder it from falling backwards. The dislocation is sometimes but on one side, otherwhiles on both. If the one side only be luxated, it (together with the chin) is drawne awrie unto the contrarie side which is not dislocated; the place is hollow from whence it is flowne, but swolne whither it is gone; the Patient cannot shut his mouth, but is forc't to gape, so that he cannot eat; the Jaw, together with the teeth therein, hangs somewhat forwards; neyther doe the teeth answer fitly to one another, but the Dogge-teeth are under the shearers. But if both sides be dislocated, all the Jaw and Chin hang forwards and towards the breast; besides also, the temporall muscles appeare distended, spittle runnes out of the Patients mouth against his will, the lower teeth stand further forth than the upper, which is the occasion that the mouth cannot be shut, neither the tongue have free volubilitie to speake, the Patient stammering in his speech. When it is dislocated on both sides, it is more difficultly restored, and all the symptomes are more vehement; wherefore it must bee set with all speed, otherwise the Patient will presently have grievous paine about his throat, inflammation, a fever, whereupon oft times death ensues within ten dayes, by reason of the five branches of nerves, which, arising from the second and fifth conjugation of the braine, are distributed into the moving muscles thereof, which, too violently extended, bring the forementioned symptomes. Practitioners affirme, that the Jaw, twelve dayes after it is set, is free from the danger of relapse. If it have beene dislocated some few daies, before you goe about to restore it, you must use softening and relaxing medicines to it: but when it is put in the joynt, apply a medicine made of the whites of egges, and oyle of roses, to assuage paine, and apply clothes dipped in oxycrate. At the second dressing you shall apply such things as have power to agglutinate and strengthen the ligaments and other relaxed parts, and also to keep it being restored in its place. This shall be the forme of such a medicine.

Rx. Pulv. boli armeni, sang. draconis, farina volat. mastich. picis, resina, an. ʒ. ss. albuminis ovorum q. s. fiat medicamentum: afterwards you may use *Emplast. Diacalcitheos* dissolved in oyle of Roses and Vinegar, and other things, as occasion shall bee.

CHAP. IX.

How to set the Jaw dislocated forwards on both sides.

The first maner
of setting a
jaw-bone.

Another.

First of all the Patient must bee placed upon the ground, or some low seat with his face upwards, and his head must be firmly held by your servant, that so it may be the more immoveable: then the Surgeon shall put both his thumbs, wrapped in clothes (lest hee hurt them by rubbing them upon the Patients teeth, as also to keep them from slipping) into the Patients mouth, and presse with them the larger teeth of the luxated Jaw, but put his other fingers without under his chin, & so lift up the whole Jaw with them. But if the operation cannot be thus done, for that the mouth on the inside is so shut and closed that the thumbs cannot bee put thereinto, then must you thrust in wooden wedges made of soft wood, as hazle or firre, being cut square, and of some fingers thicknesse. These shall bee wedged in on each side above the grinders; then cast a ligature under his chin, whose ends your servant shall hold in his hands, and setting his knees upon the Patients shoulders, shall pull them upwards; then at the same time the Surgeon shall presse

presse downwards the wooden wedges. The Jaw-bones thus restored, shall be kept so by convenient ligation, and dressed with medicines, as it is fitting; and in the meane space you must forbid the Patient to speake, or needlessly to open his mouth. Wherefore he must abstaine from hard meats, and such as require much chewing, ^{Diet.} untill his paine be quite passed, and use only spoone-meats, as Barley-creames, ponnadoes, jellies, cullasses, brothes, and the like.

C H A P. X.

Of restoring the Jaw dislocated forwards but on one side.

THe Patient must be placed on a lowe seate, so that hee may be under the Surgeon; then your servant, standing at his back, shall hold his head firme and steddie, that it may not follow the Surgeon drawing, extending, and doing other things necessarie for restoring it. Then the Surgeon, putting his thumb between the grinders, shall presse down the Jaw, and gently drawing it aside, force it into its cavities: in the meane while, also the Patient, as much as in him lyes, shall helpe forwards the Surgeons endeavour, in opening his mouth as little as he can; lest the muscles should bee extended; and hee shall only gape so wide as to admit the Surgeons thumbe, for so the temporall muscles shall be restored to their place, and favour the restitution. If hee open his mouth as wide as hee can, they will be extended after a convulsive manner; if on the contrarie he shut his teeth too close, there will be no passage for the Surgeons Thumbe unto his grinding teeth. Somewhere bee which affirme, that the Jaw-bone may sometimes be dislocated towards the hinde part, and that then the mouth is so close shut, that the Patient cannot open it nor gape, and that the lower ranke of teeth stands further in, and nearer the throat than the upper. Now for restoring it, the Patients head must be straitly holden behinde, whilst the Surgeon, the meane while putting both his thumbs into the Patients mouth, holding his other fingers without under the parties chin, hee shall, by shaking it, draw it to him, or forwards, and so restore it to its place. For my own part, I confesse I never saw this kinde of Luxation, and I easily perswade my selfe, that it can scarce ever happen, for the reason I gave in the former Chapter. But neverthelesse, if it by any meanes chance to happen, yet can it not be a perfect Luxation, but an imperfect one; the Jaw being onely but a little thrust backe to the throat to those mammillarie additaments. And then it may easily be restored by lifting or drawing forth the Jaw, and suddenly forcing it from below upwards.

What the Surgeon.

What the Patient ought to do.

Signes that the Jaw is dislocated backwards.

The Cure.

C H A P. XI.

Of the Luxation of the Collar-bone.

The Collar-bones may be broken, wrested and crooked, so also they may be dislocated. Now they are dislocated, either against the *sternum*, or against the shoulder-blade, or *acromion* thereof: yet both these kinds of dislocations are very rare, by reason of the strait and firme connexion which the Collar-bone hath with the foresaid parts; but chiefly where it is joyned to the *sternum*, it can scarce be deprest, for that it is as it were underpropt with the first rib. But it may be dislocated inwardly, outwardly, and side-wise, and according to this varietie there must be divers waies to restore it; yet generally the Collar-bone is put into its place by moving or extending the arme. But if need require, the Patient shall be layd upon the ground with his face upwards, a Tray with the bottome upwards, a hard stuffed Cushion, or the like thing being put under his shoulders: for thus it wil so come to passe, that the shoulder and

Differences of the luxated Collar-bones.

The Cure.

Com. ad sent.
62. sect. 1. de art.

chest will stand so forth, that presently by lifting up, by pressing downe, or drawing forth the arme forwards or backwards, as the bone shalbe flowne out to this or that part, you may restore it; for thus the prominencie may bee forced into its cavitie. But it will be requisite to binde it up, and lay bouldsters thereon, and to give it rest, as if it were fractured. Galen writes, that when hee was five and thirtie yeares old, whilst he exercised himselfe in the place of Exercise, his Collar-bone was so farre separated from the *Acromion*, that there was the space of three fingers betweene them. And that this Luxation was restored in fortie dayes space, by so strait and strong a Ligation, that he perceived the morion of the beating arteries under the bone. But you shall finde verie few, who will suffer such strait ligation so long, though it be never so necessarie. Verily, this kinde of Luxation is hard to be known, but farre more difficult to be healed. I have known many Surgeons deceived, who have taken the Luxation of the Collar-bone for the dislocation of the top of the shoulder. For then the *Epomis* or toppe of the shoulder swels, and the place from whence the Collar-bone is flowne, is depressed with a manifest cavity, with vehemement paine, inflammation, and impotencie of lifting up, or otherwise moving the arme, or performing other actions which are done by the helpe of the shoulder. Certainly, if this bone, when it is dislocated, be not set, the Patient shall be lame during his life, so that hee shall not bee able, neyther to put his hand to his head nor mouth.

CHAP. XII.

Of the Luxation of the Spine, or Back-bone.

An anatomical
description of
the Spine.



The variety of
the processes of
the Spine.

Gal. cap. 7. lib. 13.
de usu partium.


Lib. 13. de usu
partium.

He Backe-bone consists of many bony *vertebrae*, like rowles or wheelles mutually joynted or knit together, by their smoothnesse and circular forme conspiring to an aptnesse of moving or bending forwards. For if it should consist of one bone, we should stand continually with the trunk of our bodies immoveable, as thrust thorough with a stake. The *vertebrae* have a hole passing through the midst of them, whereby the marrow, passing this way out from the braine as by a pipe, may serve for the generation of the sensitive and motive nerves, and their distribution into all parts beneath the head. For which purpose it is perforated with many holes on the sides, through each whereof certaine conjugations of the nerves passe forth into the rest of the body, and veines and arteries passe in for the propagation of nourishment and life. The whole exterior face of the Spine is rough, and as it were armed with foure sorts of *apophyses* or processes, whereof some stand up, others downe; some direct, others transverse. Wherefore from these thornie and sharpe processes, the whole hath acquired the name of the *Spina*. The *vertebrae* the further from the neck they are, the greater they grow, so that those which are the lowest, are the largest: for it is agreeable to reason, that that which beares, should be bigger than that which is borne. Hence we see, that the Holy-bone is placed under the rest as a foundation. The side processes of the Rack-bones of the Chest, besides the benefit of defending the spinall marrow shut up therein from externall injuries, have also another, which is, they firme and fasten the bones of the ribbs by a strong tye. There lyes a gristle, and a tough, and (as it were) albuminous humor betweene the *vertebrae*, which makes them, as also all the other joynts of the bodie, slipperie, and fit for motion: the Spine is flexible with notable agilitie forwards onely, but not backwards, for that so there would be continuall danger of breaking the Hollow ascendent veine, and the great descending arterie running thereunder. Therefore the dearticulations of the *vertebrae*, mutually strengthened with strong ligaments, doe looke more backwards. I have thought good to premise these things of the nature of the Spine, before I come to the Dislocations happening thereto: I willingly omit divers other things which are most copiously delivered by Galen, content only to adde thus much;

much; That there is nothing to be found in the whole structure of Mans bones, which more clearly manifests the industrie of Gods great workmanship, than this compofure of the Spine and the *vertebra* thereof.

CHAP. XIII.

Of the Dislocation of the Head.


 He head stands upon the necke knit by dearticulation to the first *vertebra* thereof, by the interposition of two processes which arise from the *basis* thereof, neare the hole through which the marrow of the braine passes downe into the backe bone, and they are received by fit cavities, hollowed in this first *vertebra*. These processes sometimes fall out of their cavities, and cause a dislocation behinde, whereby the spinall marrow is too violently and hard compressed, bruised and extended, the chin is fastened to the breast, and the Patient can neyther drinke nor speake: wherefore death speedily followes upon this kinde of Luxation, not through any fault of the Surgeon, but by the greatness of the disease, refusing all cure.

The connexion of the head with the first Rack-bone of the necke.

Prognosticks.

CHAP. XIV.

Of the Dislocation of the vertebræ, or Racke-bones of the necke.

 He other *vertebra* of the necke may bee both dislocated and strained. Dislocation verily, unlesse it be speedily helped, brings sudden death: for, by this meanes the spinall marrow is presently opprest at the verie originall thereof, and the nerves, there-hence arising, suffer also together therewith, and principally those which serve for respiration; whereby it commeth to passe, that the *animal* spirit cannot come and disperse its selfe into the rest of the bodie lying thereunder; hence proceede sudden inflammation, the squinsie, and a difficultie, or rather a defect of breathing. But a straine or incomplete Luxation brings not the like calamitie: by this the *vertebra*, a little moved out of their seats, are turned a little to the hinde or forepart, then the necke is wrested aside, the face lookes blacke, and there is difficultie of speaking and breathing. Such, whether dislocation or straine, is thus restored. The Patient must be set upon a lowe seat, and then one must leane and lye with his whole weight upon his shoulders; and the meane while the Surgeon must take the Patients head, about his eares, betwixt his hands, and so shake and move it to everie part, untill the *vertebra* be restored to its place. We may know it is set by the sudden ceasing of the pain, which before grievously afflicted the Patient, and by the free turning and moving his head & neck everie way. After the restoring it, the head must be inclined to the part oppositeto the Luxation, and the neck must bee bound up about the dearticulation of the shoulder; but yet so, that the ligature bee not too strait, lest by pressing the weazon and gullet, it straiten the passages of breathing and swallowing.

The danger hereof.


Signes and symptomes of their subluxation.

The Cure.

Signes of their restitution.

CHAP. XV.

Of the Dislocated Vertebræ of the Back.

 He Rack bones of the backe may bee dislocated inwards, outwards, to the right side, and to the left. We know they are dislocated inwards, when as they leave a depressed cavitie in the spine; outwardly, when they make a bunch on the backe; and wee know they are luxated to the right or left side, when as they obliquely bunch forth to this or that side. The *vertebra* are dislocated by a

Differences and signes

Causes

cause

The danger of
a *vertebra* dislo-
cated inwards.

Hipp. sent. 51.
sect. 3. de art. &
Gal. in com.

cause eyther internall, or externall, as is common to all other Luxations; the internall is eyther the defluxion of humors from the whole bodie, or any part to them and their ligaments; or else a congestion proceeding from the proper and native weakenesse of these parts; or an attraction arising from paine and heat. The externall is a fall from high upon some hard bodie, a heaue and bruising blow, much and often stooping, as in Dressers and Lookers to Vineyards, and Paviers, decrepite old men; and also such, as through an incurable dislocation of the Thigh-bone, are forced in walking to stoope downe, and hold their hand upon their thigh. But a *vertebra* cannot be forced or thrust inwards, unlesse by a great deale of violence; and if it at any time happen, it is not but with the breaking of the tyes and ligaments, for they will breake rather than suffer so great extension. Such a dislocation is deadly, for that the spinall marrow is exceedingly violated by too strait compression, whence proceeds dulnesse, and losse of sense in the members lying thereunder. Neyther is restitution to bee hoped for, because wee cannot through the belly force it into its place: the urine is then supprest, as also the excrements of the belly; sometimes on the contrarie, both of them breake forth against the Patients minde, the knees and legges grow cold, their sense and motion being lost. Such things happen more frequently, when the spine is luxated inwards, than when it is dislocated outwards, for that the nerves, thence arising, runne and are carried more inwardly into the bodie. Besides, the pressed Spinall marrow becomes inflamed; and that being inflamed, the parts of the same kinde, and such as are joyned thereto, are also inflamed by consent, whence it happeneth, that the bladder cannot cast forth the urine. Now where the sinewes are pressed, they can no more receive the irradiation of the animal facultie. Hence followes the deprivation of the sense and motion in the parts whereto they are carried, therefore the contained excrements doe no more provoke to expulsion by their troublesome sense, neither are pressed to keep them in; thence proceeds their suppression, and hence their breaking forth against their wils. But the spine outwardly dislocated, scarce causes any compression of the marrow or nerves.

CHAP. XVI.

How to restore the Spine outwardly dislocated.

The cure.



Another maner
of cure.

THe *vertebra* outwardly dislocated, when as they stand bunching forth, then it is fit to lay and stretch forth the Patient upon a table, with his face downe-wards, and straitly to binde him about with towels under the arm-pits, & about the flanks and thighes. And then to draw and extend, as much as we can, upwards and downe-wards, yet without violence: for unlesse such extension be made, restitution is not to be hoped for, by reason of the processes and hollowed cavities of the *vertebra*, wherby, for the faster knitting, they mutually receive each other. Then must you lye with your hands upon the extuberancie, and force in the prominent *vertebra*. But if it cannot be thus restored, then will it bee convenient to wrap two pieces of wood, of foure fingers long, and one thick, more or lesse, in linnen clothes, and so to apply one on each side of the dislocated *vertebra*, and so with your hands to presse them against the bunching forth *vertebra*, untill you force them backe into their seats, just after the manner you see it here delineated.



In the meane while have a care, that you touch not the processe which stand up in the ridge of the Spine, for they are easily broken. You may know that the *vertebrae* are restored by the equall smoothnesse of the whole Spine. It is fit, after you have restored it, to binde up the part, and lay splints or plates of Lead neatly made for that purpose upon it; but so, that they may not presse the crists or middle processe of the *vertebra*, which I formerly mentioned, but only the sides: then the Patient shall be layd upon his backe in his bed, and the splints long kept on, lest the *vertebra* should fall out againe.

How to keep
the restored
vertebrae in their
places.

CHAP. XVII.

A more particular inquirie of the Dislocation of the Vertebrae, proceeding from an internall cause.

THe *vertebrae* are in like sort luxated by the antecedent cause, as wee have formerly said, which is caused by the naturall imbecillitie of the parts; principally of the nervous ligament, by which all the *vertebrae* are bound each to other; this ligament comes not to the spinall marrow, but onely binde together the *vertebrae* on their outsides. For, besides the two membranes proceeding from the two *Meninges* of the Braine, wherewith the marrow is covered, there is a third strong and nervous coate put upon it, lest, whilst the spine is diversly bended, the bended marrow should bee broken. This third coate arises from the *pericranium*, as soone as it arrives at the first *vertebra* of the necke: Now that Ligament, wherewith we said the joynts of the *vertebrae* were mutually knit and fastened, is encompassed with a tough and glutinous humor for the freer motion of the *vertebrae*. Sometimes another cold, crude, grosse and viscid humor, confused and mixed herewith by great deluxions and catarrhes, begets a tumor, which doth not only distend the nerves proceeding forth of the holes of the *vertebrae*, but also distends the ligaments wherewith they are bound together: which so distended, and (as it were) drawne aside, do draw together with them the *vertebrae*, one while towards the right side, another while to the left, somewhiles inwards, otherwhiles outwards, and thus move them out of their seats, and dislocate them. A dislocated *vertebra*, standing forth and making a bunch, is termed in Greeke *Cyphosis*, (Those thus affected we may call, *Bunch-backt*.) But when it is depressed, it is named *Lordosis*, (Such we may terme, *Saddle-backt*.) But when the same is luxated to the right or left side, it maketh a *Scoliosis* (or *Crookednesse*), which wresting the spine, drawes it into the similitude of this letter S. Galen addes a fourth default of the *vertebrae*, which is, when their joynts are moved by reason of the loosenesse of their

Cyphosis.
Lordosis.
Scoliosis.

Com. ad. sem. 2.
sect. 3. lib. de arb.

Seisis.

The separation
of the spinall
marrow from
the encompass-
ing *vertebrae*.

The error of
Nurses in bin-
ding and lacing
of Children.

ligaments, the *vertebrae* yet remaining in their places, and he calls it a *Seisis* (or shaking). They also note another defect peculiar to the Spinall marrow, which is, when as it (the *vertebrae* being not moved whereto it adheres) is plucked and severed from them: this disease is occasioned by a fall from on high, by a great stroake, and by all occasions which may much shake, and consequently depresse the spinall marrow, or by any other meanes remove, or put it forth of its place. Scarce any recovers of this disease, for many reasons, which any exercised in the art, may easily thinke upon: But let us returne to the internall cause of Luxations. Fluid and soft bodies, such as Childrens, usually are very subject to generate this internall cause of de-fluxion. If externall occasions shall concur with these internall causes, the *vertebrae* will sooner be dislocated. Thus Nurses, whilst they too straitly lace the breasts and sides of girles, so to make them slender, cause the breast-bone to cast its selfe in forwards or backwards, or else the one shoulder to bee bigger or fuller, the other more spare and leane. The same error is committed, if they lay children more frequently and long upon their sides, than upon their backs; or if, taking them up when they wake, they take them only by the feete or legges, and never put their other hand under their backs, never so much as thinking that children grow most towards their heads.

CHAP. XVIII.

Prognosticks of the Dislocated Vertebrae of the backe.

Hipp. sent. 6. -
sect. 3. de art.

In Infancie it happen that the *vertebrae* of the backe shall bee dislocated, the ribbs will grow little or nothing in breadth, but runne outwards before; therefore the chest loseth its naturall latitude, and stands out with a sharpe point. Hence they become asthmaticke, the lungs and muscles which serve for breathing, being pressed together and straitened; and that they may the easlier breathe, they are forced to hold up their heads,

whence also they seeme to have great throats. Now because the weazon being thus pressed, the breath is carried through a strait passage; therefore they whease as they breath, and snort in their sleepe, for that their lungs, which receive and send forth the breath or ayre, be of lesse bignesse: besides also, they are subject to great distillations upon their lungs, whereby it commeth to passe, that they are shorter lived. But such as are bunch-backed below the midriffe, are incident to diseases of the kidneyes and bladder, and have smaller and slenderer thighes and legges, and they more slowly and sparingly cast forth haire and have beards; to conclude, they are lesse fruitfull, and more subject to barrenesse, than such as have their crookednesse above their midriffe. The Bunches which proceede from externall causes are oft times cureable; but such as have their originall from an inward cause are absolutely uncureable, unlesse they be withstood at the first with great care & industrie. Wherefore such as have it by kinde, never are helped. Such as, whilst they are yet Children, before their bodies bee come to perfect growth, have their Spine crooked and bunching out, their bodies use not to grow at the Spine, but their legges and armes come to their perfect and full growth; yet the parts belonging to their breasts and backe, become more slender. Neither is it any wonder, for seeing the veines, arteries, and nerves are not in their places, the spirits doe neither freely, nor the alimentarie juices plenteously flow by these straitned passages, whence leanesse must needs ensue: but the limbs shall thence have no wrong, for that not the whole bodie, but the neighbouring parts onely are infected with the contagion of this evill. When divers *vertebrae*, following each other in order, are together and at one time dislocated, the dislocation is lesse dangerous, than if one alone were luxated. For, when one only *vertebrae* is dislocated, it carries the Spinall marrow so away with it, that it forces it almost into a sharpe angle; wherefore being more straitly pressed, it must necessarily bee eyther broken or hurt, which is absolutely

deadly,


Why, when the
spine is luxated,
the parts be-
longing to the
chest are nour-
ished and grow
the lesse.

Why the Luxa-
tion of one *ver-
tebrae* is more
dangerous than
of many.

deadly, for that it is the braines substitute. But when divers *vertebrae* are dislocated at once, it must of necessity be forced only into an obtuse angle, or rather a semi-circle; by which compression it certainly suffers, but not so, as that death must necessarily ensue thereof. Hereto may seeme to belong that which is pronounced by Hippocrates; A circular moving of the *vertebra* out of their places is lesse dangerous than an angular. *Sent. 51. sect. 3. lib. de art.*


CHAP. XIX.

Of the Dislocation of the Rump.

 He Rump oft times is after a sort dislocated inwards by a violent fall upon the buttocks, or a great blow; in this affect the Patient cannot bring his heele to his buttockes, neither, unlesse with much force, bend his knee. Going to stoole is painefull to him, neyther can he sit unlesse in a hollow chaire. That this (as it were) dislocation may bee restored, you must thrust your finger in by the Fundament, even to the place affected, as we have said in a fracture: then must you strongly raise up the bone, and with your other hand at the same time joyne it rightly on the outside with the neighbouring parts, lastly it must be strengthened with the formerly mentioned remedies, and kept in its place. Now it will bee recovered about the twentieth day after it is set. During all which time the Patient must not goe to stoole, unlesse sitting upon a hollow seat, lest the bone, as yet scarce well recovered, should fall againe out of its place. *The signed*
The Cure

CHAP. XX.

Of the Luxation of the Ribs.

 He Ribs may by a great and bruising stroake bee dislocated, and fall from the *vertebra* whereto they are articulated, and they may bee driven inwards, or side-waies. Of which kinde of Luxation, though there be no particular mention made by the Ancients, yet they confesse, that all the bones may fall, or be removed from their seats or cavities, wherein they are received and articulated. The signe of a Rib dislocated and slipped on one side, is, a manifest inequality, which here makes a hollownesse, and there a bunching forth; but it is a signe that it is driven in, when as there is only a depressed cavities where it is knit and fastened to the *vertebra*. Such dislocations cause divers symptoms, as difficulty of breathing, the hurt rib hindring the free moving of the chest; a painfulness in bowing downe, or lifting up the bodie, occasioned by a paine counterfeiting a pleurisie; the rising or puffing up of the musculous flesh about the rib, by a mucous and flatulent humor there generated: the reasons whereof we formerly mentioned in our Treatise of Fractures. To withstand all these, the dislocation must bee forthwith restored, then the puffing up of the flesh must bee helped. Wherefore, if the dislocated Rib shall fall upon the upper side of the *vertebra*, the Patient shall be set upright, hanging by his armes upon the toppe of some high doore or window: then the head of the rib, where it stands forth, shall be pressed downe, untill it be put into its cavity. Again, if the rib shall fall out upon the lower side of the *vertebra*, it will be requisite, that the Patient bend his face downe-wards, setting his hands upon his knees; then the dislocation may be restored by pressing or thrusting in the knot or bunch which stands forth. But if the luxated rib fall inwards, it can no more be restored or drawn forth by the hand of the Surgeon, than a *vertebra* which is dislocated towards the inside, for the reasons formerly delivered. *Causes*
Signes
Cure
Gal. Com. ad sent. 3. sect. 1. de art.

CHAP. XXI.

Of a Dislocated Shoulder.



Why there is
no internall
ligament from
the arme-bone
to the shoulder
blade.

Differences of a
luxated shoul-
der.

Sent. x. sect. 1.
lib. de art.

Signes of the
shoulder dislo-
cated downe-
wards.

The waies to
restore it.

He shoulder is easily dislocated, because the ligaments of its de-
articulation are soft and loose; as also for that the cavities of the
shoulder-blade is not very deepe; and besides, it is every where
smooth and polite, no otherwise than that of the shoulder-bone,
for that it is herein received. Adde hereunto, that there is no in-
ternall ligament from bone to bone, which may strengthen that
dearticulation, as is in the legge and knee. Wherein notwith-
standing, we must not thinke nature defective, but rather admire Gods providence
in this thing; for that this articulation serves not onely for extension and bending,
as that of the Elbow, but besides, for a round or circular motion, as that which
carries the arme round about, now up, then downe, according to each difference of
site. The shoulder-bone, which Hippocrates calls the Arme-bone, may be disloca-
ted foure manner of waies; upwards, downe-wards, or into the Arme-pit, for-
wards and outwards, but never backwards, or to the hinde part. For, seeing that
there the cavities of the blade-bone, which receives the head of the arm-bone, which
Hippocrates calls a Joynt, lyes and stands against it; who is it that can but imagin
any such dislocation? In like sort it is never dislocated inwardly, for on this part it
hath the flesh of a strong muscle, termed *Deltoides*, lying over it, besides also the
backe and *acromion* of the Blade, and lastly, the anker-like or beake-like proceffe,
all which foure hinder this joynt from slipping inwards. Now Hippocrates saith,
that he hath only seene one kinde of Dislocation of this bone, to wit, that which
is downe-wards or to the arme-pit: and certainly it is the most usuall and frequent;
wherefore we intend to handle it in the first place. When the shoulder is dislocated
down-wards into the Arme-pit, a depressed cavity may bee perceived in the up-
per part of the joynt; the *acromion* of the Blade shewes more sharpe and standing
forth than ordinarie, for that the head of the shoulder-bone is slipt downe, and hid
under the arme-pit, causing a swelling forth in that place; the Elbow also casts it
selfe (as it were) outwards, and stands further off from the ribs; and though you
force it, yet can you not make it to touch them; the Patient cannot lift up his
hand to his eare on that side, neyther to his mouth, nor shoulder. Which signe is
not peculiar to the luxated shoulder, but common to it, affected with a contusion,
fracture, inflammation, wound, absesse, *scirrhus*, or any defluxion upon the nerves,
arising out of the *vertebra* of the neck, and sent into the arme: also this arme is lon-
ger than the other. Lastly (which also is common to each difference of a luxated
shoulder) the Patient can move his arme by no kinde of motion without sense of
paine, by reason of the extended and pressed muscles, some also of their fibres be-
ing broken. There are sixe wayes to restore the shoulder luxated down-wards into
the arme-pit. The first is, when it is performed with ones fist, or a towell. The se-
cond, with a clew of yarne, which put under the arme-pit, shall be thrust up with
ones heele. The third, with ones shoulder put under the Arme-hole, which maner,
together with the first, is most fit for new and easily to be restored luxations, as in
those who have loose flesh, and effeminate persons, as children, eunuches, and wo-
men. The fourth, with a ball put under the Arme-pit, and then the Arme cast over a
piece of wood held upon two mens shoulders, or two standing posts. The fifth,
with a Ladder. The sixth, with an Instrument, called an *Ambi*. Wee will describe
these sixe waies, and present them to your view.

CHAP. XXII.

Of the first manner of setting a Shoulder, which is with bones fist.



First, let one of sufficient strength, placed on the opposite side, firmly hold the Patient upon the joynt of the Shoulder, lest he move up and downe with his whole bodie, at the necessarie extension, working and putting it in : then let another, taking hold of his arme above the elbow, so draw and extend it downe-wards, that the head thereof may be set just against its cavitie, hollowed in the blade-bone. Then at last let the Surgeon lift and force up

*Gal. com. ad sent.
23. sect. 1. de art.*

with his fist the head of the bone into its cavitie. Here this is chiefly to be observed, that in fresh luxations, especially in a bodie soft, effeminate, moist, and not over corpulent, that it sometimes comes to passe, that by the only meanes of just extension, the head of the bone, freed from the muscles and other particles wherewith it was, as it were, intangled, will betake it selfe into its proper cavitie; the muscles being by this meanes restored to their place and figure, and drawing the bone with them, as they draw themselves towards their heads, as it were with a sudden gird or twitch : wherefore in many, whilst we thought no such thing, it sufficed for restitution only to have extended the arme. But if the Luxation bee inveterate, and the hand cannot serve, then must the Patients shoulder be fastned to a Poste with the forementioned Ligature, or else committed to ones charge, who may stand at his backe, and hold him fast. Then the arme shall presently be tyed about, a little above the elbow, with a fillet, whereto a cord shall be fastened ; which, being put or fastened to the Pulley, shall be drawne or stretched forth, as much as need shall require. Lastly the Surgeon, with a towell, or such like Ligature, fastened about his necke, and hanging down, and so put under the Patients arme-pit neare to the Luxation, shall, raising himselfe upon his feete with the whole strength of his necke, lift up the shoulder, and also at the same time bringing his arme to the Patients breast, shall set the head of the shoulder-bone, forced with both his hands into its cavitie, as you may see by this ensuing figure.

A perfect setting the luxated shoulder by extension only.

An expression of the first manner of putting a Shoulder into Joynt.



Then must you cover all the adjacent parts with a medicine made *ex farina volatilis, bolo armenio, myrtillis, pice, resina & alumine*, beaten into powder, and mixed with

with the white of an egge. Then must the hollownesse under the arm be filled with a clew of Woollen or Cotton yarne, or a linnen cloth spread over with a little oyle of Roses or Myrtles, a little vinegar, and *unguentum rosatum*, or *infrigidans Galeni*, lest it sticke to the haire, if there be any there. The part must afterwards be bound up with a ligature, consisting of two heads, of some five fingers breadth, and two ells long, more or lesse, according as the bodie shall require. The midst thereof shall be put immediately under the arme-pit, and then crossed over the lame shoulder, and so crossing it as much as shalbe fit, it shall be wrapped under the opposite arme. And lastly, the arme shall be layd upon the breast, and put in a scarfe, in a middle figure almost to right angles, so that by lifting up the hand hee may almost touch his sound shoulder, lest the bone, newly set, may fall out againe; neyther shall the first dressing be stirred, untill foure or five daies be past, unlesse the greatnesse of some happening symptome divert us from this our purpose.

CHAP. XXIII.

Of the second manner of restoring a Shoulder, that is, with the heele; when as the Patient by reason of paine can neither sit, nor stand.

Hipp. sent. 12.
sect. 1. de art.

THe Patient must be layd with his backe on the ground upon a Cover-lid, or Mat, and a clew of yarne or leathern-ball, stuffed with tow or cotton, of such bignesse as may serve to fill up the cavities, must be put under his arm-pit, that so the bone may straight-wayes the more easily be forced by the heele into its cavity. Then let the Surgeon sit beside him, even over against the luxated shoulder; and if his right shoulder be luxated, he shall put his right heele to the ball, which filled up the arme-pit; but if the left, then the left heele: then let him forthwith draw towards him the Patients arme, taking hold thereof with both his hands, and at the same instant of time strongly presse the arme-pit with his heele. Whilst this is in doing, one shall stand at the Patients backe, who shall lift up his shoulder with a towell, or some such thing fitted for that purpose, and also with his heele presse downe the top of the shoulder-blade: another also shall sit on the other side of the Patient, who, holding him, shall hinder him from stirring this way or that way, at the necessary extension in setting it, as you may see it exprest by the following figure.

The expression of the second manner of restoring a Shoulder.



CHAP. XXIV.

Of the third manner of restoring a Shoulder.

Some one who is of a competent height and strength shall put the sharpe part of the toppe of his shoulder under the Patients arme-pit, and also at the same time shall somewhat violently draw his arme towards his owne breast, so that the Patients whole bodie may (as it were) hang thereby. In the meane time another, for the greater impressiō, shall lay his weight on the luxated shoulder, shaking it with his whole bodie. Thus the shoulder, drawne downe-wards by the one which stands under the arme-hole, and moved and shaken by the other, who hangs upon it, may bee restored into its seat, by the helpe of the Surgeon concurring therewith, and with his hand governing these violent motions, as the following figure shews.

The figure of the third manner of putting a Shoulder into Joynt.



CHAP. XXV.

Of the fourth manner of restoring a dislocated Shoulder.

You must take a perch, or piece of Wood (somewhat resembling that which the Water-bearers of Paris use to put on their shoulders) some two inches broad, and some sixe foote long; in the midst hereof let there bee fastened a clew of yarne, or ball of sufficient bignesse to fill up the cavitie of the arme-hole. Let there be two pins put in, one on each side of the ball, each alike distant there-from, with which, as with staves, the shoulder may be kept in, and upon the ball, that it slip not away from it. Let two strong men, taller than the Patient, cyther by nature or art, put this perch upon their shoulders; then let the Patient put his arme-pit upon that place where the ball stands

stands up; the Surgeon must be ready to pull his hanging arme downe-wards. Thus the Patient shall (as it were) hang on the perch with his shoulder, and so the head of the bone shall bee forced into its cavitie, as this ensuing Figure declares; wherein you may see the perch or yoake, with the two wooden pins and ball fastened in the midst, delineated by its selfe.

The figure of the fourth manner of restoring the Shoulder.



CHAP. XXVI.

Of the fifth manner of putting the Shoulder into joynt, which is performed by a Ladder.



You may also restore a Shoulder dislocated into the Arme-pit, by the helpe of a Ladder, after the following manner. Let some round body, as a ball, or clew of yarne, which (as we formerly said) may serve to fill the Arme-pit, be fastened upon one of the upper steps of a Ladder; at the foot of the Ladder set a low stoole, whereupon let the Patient mount; then binde both his legges, and also his sound arme behind his back, lest, when you are about your operation, he hinder and spoyle all you doe, by laying his hand, or setting his foote upon the Ladder. Then let his Arme be presently put over the step of the Ladder, and his Arme-pit put upon the there fastened ball, the Patient in the meane while being wished to come with his whole body as neare unto the steps of the Ladder as he is able; for otherwise, besides that there is no other hope of restoring the Luxation, there would bee no small danger of breaking the shoulder-bone. Also let him take heede, that he put not his head betweene the steps. Then his Arme, bound above the Elbow with filleting, or some other ligature fit for that purpose, shall be drawne downe by the hand of some that assist you, and at the same time let the stoole be plucked from under his feet, so that hee may hang upon the Ladder. Thus by this meanes the head of the Shoulder will bee restored by its selfe, the endeavour of the Surgeon assisting, and pressing downe the Shoulder.

shoulder-blade, and moving it to and againe. The bone being set, the stoole, which a little before was plucked from under the Patients feet, shall be put there againe, that he may, with the more ease and lesse paine, pull backe his Arme from the step of the Ladder. For if he should lift it high up to draw it over, there would be danger, lest being newly set, and not well stayed, the head of the bone might fall out againe. I have thought good to have all these things here expressed, that you may learne this operation, as if you see it done before you.

The delineation of the fifth manner of restoring a Shoulder.



I have not thought fit in this place to omit the industrie of Nicholas Picart, the Duke of Guise his Surgeon; who being called to a certaine Countrey-man to set his Shoulder being out of joynt, and finding none in the place besides the Patient and his wife, who might assist him in this worke, hee put the Patient, bound after the forementioned manner, to a Ladder; then immediately hee tyed a staffe at the lower end of the Ligature, which was fastened about the Patients arme above his Elbow, then put it so tyed under one of the steps of the Ladder, as low as he could, and got astride thereupon, and sate thereon with his whole weight, and at the same instant made his wife to plucke the stoole from under his feet: which being done, the bone presently came into its place, as you may see by the following figure.

Another figure expressing the fourth manner
of restoring a dislocated Shoulder.

Another figure to the same purpose.



If you have never a Ladder, you may use a peece of Wood, layd a-crosse upon two Posts. Also you may use a doore, as the other figure shewes, wherein you must observe a flat piece of Wood or *spatula* with strings thereat, whose use shall be showne in the following Chapter.

CHAP. XXVII.

The sixth manner of restoring a Shoulder, luxated into the Arme-pit.

Setl. I. lib. I. de
Artic. sent. 19.



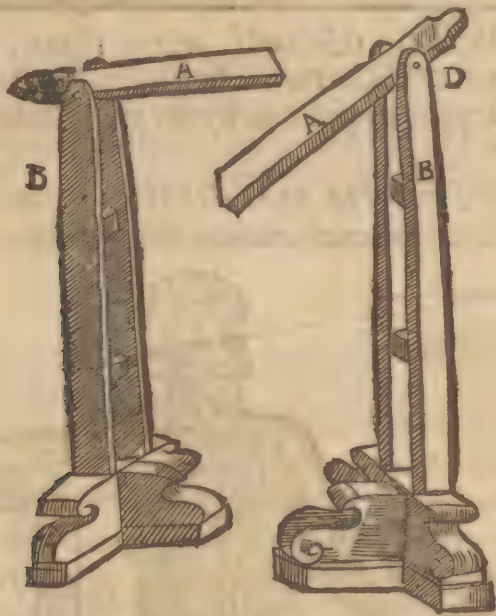
The description
of the Glof-
socomium
termed *Ambi*.

Ippocrates writes, that this is the best way of all to restore a dislocated Shoulder. You must take a wooden *spatula* of some foure or five fingers breadth, and some two fingers thickeffe or lesse, but some yard or thereupon long; the one end thereof must bee narrow and thin, with a round head standing up and lightly hollowed, that put under the Arme-pit, it may receive part of the head of the shoulder-bone, the which for that purpose must not bend towards the ribs, but to the top of the Shoulder. This upper part of the *spatula* must bee wrapped about with a linnen or woollen ragge, or some such soft thing, that it may be the softer, and hurt the lesse; and then it must be so thrust under the Arme-pit, that it may thoroughly penetrate into the inner part betweene the ribs, and the head of the Shoulder-bone. There must, besides in this *spatula*, be two holes in three severall places, each alike distant from other, through which let soft strings be put, whereby it may be tyed to the arme, stretched all the length thereof even to the fingers, in one place a little below the head of the shoulder-bone, in another a little above the elbow, and the third at the wrest, that so they may hold it firme. Therefore let the distances of the holes bee fitted to this purpose; but principally you must have a care of this, that the upper part of the *spatula*,

spatula reaching beyond the head of the arme, enter even to the innermost Cavity of the arme-pit; then, a crosse pin or piece of wood must be made fast through two postes or a frame, & well fastened thereto, and therupon the Arme with the *spatula* must be so put over, that the pin may be under the arme-pit, the body weighing one way, and the arme another: which being done, the arme must be drawn down one way, and the body another about the pin. Now this crosse pin must bee put on such a height that the patient may stand on tipp-toes. Now this is the very best way of restoring a shoulder. In stead of two posts or a frame, you may make shift with a ladder, doore, beds postes, and such like things as shall bee there present. I have heard *Henry Arvet*, a very good surgeon of *Orleans* say, that he never attempted this manner of putting into joint a shoulder dislocated into the arme-pit without good successe, unlesse by chance (which also is noted by *Hippocrates*) that the flesh is growne into the cavity, and the head of the bone hath made it selfe another cavity in the place whereinto it is fallen; for in this case the bone will either not bee restored, or else not remaine in its place, but fall backe notwithstanding into the new hollowed cavity, which serves it in stead of its naturall socket or cavity. But I must here admonish young Surgeons, that if the bone be not restored at the first endeavour and onser, that they doe not despaire and presently desist from their intended operation, but they must winde about, and gently move the joint: for so at the length it will bee more easily moved, and enter into the naturall cavity. When it is in, it must bee bound up with compresses and rowlers after the forementioned manner.

To the former figures I have thought good to adde this, which expresth the maner of restoring a shoulder luxated into the arme-pit with a *spatula*, after the man-
Hip. sent. 62, 4-de artic.
 ner of *Hippocrates*. This *spatula* fastened with an iron pin to the standing frame may be turned, lifted up, and pressed downe at your pleasure. A. shewes the wooden *spatula*. B. The frame or standing postes.

Hippocrates his Glossocomium termed Ambi.



For the more certaine use of this instrument the patient must sit upon a seate which must be somewhat lower than the standing frame, that so the *spatula* which is thrust into the arme-pit may be the more forcibly deprest, so to force in the head of the shoulder-bone; the patients feete must also be tyed, that hee may not raise himselfe up whilst the Surgeon endeavours to restore it. Now he shall then endeavour to restore it, when he shall have bound the stretched forth arme of the dislocated shoulder unto the *spatula*, & thrust the one end thereof under the slipped forth head of the shoulder bone, as wee have formerly shewed; for then by pressing downe the other end of the *spatula* which goes to the hand, the bone is forced into its cavity. You must diligently observe the wooden *spatula*, which therefore I have caused to be expressed.

pressed by it selfe, which *Hippocrates* calleth *Ambi*, whose head is a little hollowed where it is noted with this letter B. The whole *spatula* is marked with this letter A. with three strings hanging thereat, provided for the binding of the arme, that it may be kept steddy, as you may perceive by the ensuing figure.

The figure of an Ambi fitted to a dislocated shoulder.



There are other additions to this *Ambi*, whose figure I now exhibited to your view, by the invention of *Nicholas Picart* the Duke of *Lorraine's* Surgeon, the use and knowledge whereof, bestowed upon mee by the inventor himselfe, I would not envie the studious reader.

Another figure of an Ambi with the additaments.



AA. Shew the two eares, as it were, stops made to hold and keep in the top of the shoulder, lest it should slippe out when it is put into the frame or supporter.

BB. The frame or supporter whereon the *Ambi* rests.

CC. The pin or axeltree which fastens the *Ambi* to the supporter.

DD. Screw-pinnes to fasten the foote of the supporter that it stirre not in the operation.

EE. The holes in the foote of the supporter, whereby you may fasten the screw-pins to the floore.

CHAP. XXVIII.

How to restore a shoulder dislocated forewards.



It is seldome that the shoulder is luxated towards the foreside; yet there is nothing so stable and firme in our bodies which may not be violated by a violent assault; so that those bones doe also fall out of joint, whose articulations are strengthened for the firmer connexion with fleshy, nervous, gristly and bony stayes or barres. This you may perceive by this kinde of dislocated

shoulder, strengthened as it were with a strong wall on every hand; to wit, the *Acromium* and the end of the collar bone, seeming to hinder it, as also the great and strong muscles, *Epomis* and *Biceps*. *Hippocrates*, shut up within the strait bounds of the lesser *Asia*, never saw this kinde of dislocation, which was observed fivetimes by *Galen*. I professe I have seene it but once, and that was in a certaine Nun, which weary of the Nunnery, cast her selfe downe out of a window, and bore the fall and weight of her body upon her elbow, so that her shoulder was dislocated forewards.

This kinde of dislocation is knowne by the depravation of the conformation or figure of the member, by the head of the shoulder wrested out towards the breast, as also the patient cannot bend his elbow. It is restored by the same meanes as other

luxations of other parts, to wit, by strait holding, extending, and forcing in. Therefore the patient must bee placed upon the ground with his face upwards, and then you must extend the shoulder otherwise than you doe when it is luxated into the arme-pit. For when it falleth into the arme-hole, it is first drawne forewards, then forced upwards, untill it bee brought just against the cavity whereinto it must enter.

But in this kinde of luxation, because the toppe of the shoulder is in the fore parts of the dearticulation shut up with muscles, opened both to the outer, as also to the inner part, you must worke to the contrary; to wit, to the hinde part. But first of all you must place a servant at the backe of the patient, who may draw backe a stronge

and broad Bandage cast about the arme-pit (such as is the *Carchesium*, which consists of two contrary and continued strings) lest that when the arme shall be extended, the shoulder follow: also you must put a clew of yarne to fill up the arme-pit. Then must you extend the arme, casting another ligature a little above the elbow, and in the interim have a care that the head thereof fall not into the arme-pit, which may be done both by putting the forementioned clew under the arme, and drawing the head another way; then must you permit, by slacking your extension, the joint freed from the encompassing muscles, to be drawne and forced into its cavity, by the muscles forcible recoiling, as with an unanimous consent, into themselves and their originals, for thus it will easily bee restored, and such extension onely is sufficient thereto.

Com. ad sen. 2. c. 23. sect. 1. de articulis.

Signes;

Cure;

Sen. 13. sect. 1. de art.

CHAP. XXIX.

Of the shoulder luxated outwardly.

Signes.



The cure.

What to bee
done to hold in
the shoulder
after it is resto-
red.

He dislocation also of the shoulder to the outward parts seldom happens; but yet, if it may at any time happen, the extension of the arme will bee very difficult, but yet more difficult towards the outward part than towards the inward; there is a depressed cavity perceived towards the chest; but externally a bunching forth, to wit, in that part from whence the head of the shoulder-bone is fled. For the restoring hereof, the patient must bee laid flat on his belly, and the elbow must be forcibly drawne contrary to that whereto it is fled, to wit, inwardly to the breast; and also the standing forth head of the arme-bone, must bee forced into its cavity, for thus it shall bee easily restored. But into what part soever the shoulder-bone is dislocated, the arme must be extended and drawne directly downwards. After the restitution fitting medicines shall be put about the joint. Let there bee somewhat put into the arme-pit which may fill it up, and let compresses or boulders bee applyed to that part to which the luxated bone fell; then all these things shall be strengthened and held fast with a strong and broad two headed ligature put under the arme-pit, and so brought across upon the joint of the shoulder, and thence carried unto the opposite arme-pit by so many windings as shall be judged requisite. Then the arme must be put and carried in a scarfe to right angles, which figure must be observed not onely in every luxation of the shoulder, but in each fracture of the arme also, for that it is lesse painefull, and consequently, such as the arme may stand the longest therein without moving.

CHAP. XXX.

Of the shoulder dislocated upwards.

Signes.



Cure.

He head of the shoulder also may sometimes bee luxated into the upper part. Which when it happens, it shewes it selfe by bunching forth at the end of the Collar bone, the hollownes of the arme-pit is found larger than usuall, the elbow flies further from the ribs than when it fell downwards, now the arme is wholly unable to performe the usuall actions. It is fit for the restitution of such a luxation, that the Surgeon stoope downe, and put his shoulder under the patients arme, and then stand up as high as he can upon his feete, and therewithall presse downe the head of the shoulder-bone into the cavity, or else make some other to doe it. Otherwise it is fit to lay the Patient upon his backe on the ground, and whilest some one extends the affected arme by drawing it downwards, the Surgeon with his owne hand may force downe the head of the bone into its cavity. The operation performed, the same things shall bee done as in other luxations, compresses being applyed to that part whereto the bone flew, and it being also bound up with ligatures. Now you may understand in these foure forementioned kindes of dislocations, that the bone which was luxated is restored, by the sound which shall bee heard as you force it in, by the restitution of the accustomed actions, which are perceived by the bending, extending, and lifting it up, by the mitigation of the paine, and lastly by the collation and comparing of the affected arme with the sound, and by its similitude and equality therewith.

C H A P. XXXI.

Of the dislocation of the Elbow.

THe Elbow may also be foure manner of wayes dislocated; to wit, inwardly, outwardly, upwards and downewards. By the part which is inwards, I meane that which looks towards the center of the body, when as the arme is placed in a naturall site, to wit, in a middle figure betweene prone and supine; I make the outward part, that which is contrary thereto. By the upper part I meane that which is towards the heaven, and by the lower that which is next to the earth: and by how much the joint of the elbow consists of more heads and cavities, than that of the shoulder, by so much when it is luxated it is the more difficultly set, and it is also more subject to inflammation, and to grow hard thereupon, as Hippocrates saith. Now the joint of the elbow is more difficultly dislocated than that of the shoulder, and more hardly set, for that the bones of the cubit and arme doe receive and enter each other by that manner of articulation which is termed *Ginglymus*; as wee have formerly more at large treated in our Anatomy, and a little before in our treatise of fractures. The Elbow is therefore dislocated, for that the processe thereof are not turned about the shoulder-bone in a full orbe, and by an absolute turning. Wherefore if at any time the cubit be bended more straitly and closely than that the inner processe can retaine its place and station in the bottom of its *sinus*, the hinde processe falleth out and is dislocated backwards. But when as the fore-processe is extended more violently, and forced against the bottom of its cavity, it flies and departs out of its place as beaten or forced thence, and this kinde of luxation is farre more difficultly restored than the former: adde hereunto that the utter extremitie of the cubite, which is called *Olecranon*, is the higher, but the other inner is the lower; whence it is that every one can better and more easily bend than extend their cubits. Therefore such a dislocation is caused by a more violent force, than that which is made to the inner side. The signe of this luxation is, the arme remains extended, neither can it be bended, for the inner processe staves in the externall cavity, which is hollowed in the bottom of the shoulder-bone, which formerly was possessed by the inner part of the *Olecranon*; which thing makes the restitution difficult, for that this processe is kept, as it were, imprisoned there. But when it falleth out dislocated to the fore part, the arme is crooked, neither is it extended, and it is also shorter than the other. But if the elbow bee fallen out of its place according to the other manner of dislocations, to wit, upwards or downewards, the naturall figure thereof is perverted, for the arme is stretched forth, but little notwithstanding bended towards that part from whence the bone went, that is, figured after a middle manner betweene bending and extending thereof. What kinde soever of dislocation shall befall it, the action of the Elbow will either not bee at all, or certainly not well untill that it be restored to its former place; there is a swelling in the part whereinto it is flowne, and a cavity there from whence it is fled, which also happens in the dislocations of all other parts. Furthermore, one dislocation of the Elbow is compleat and perfect, another imperfect. The latter as it easily happens, and through a small occasion, so it is easily restored; but on the contrary a perfect, as it hardly happens, and not unlesse with great violence, so it is not so easily restored againe, especially if that you doe not prevent inflammation, for being inflamed it makes the restitution either difficult, or wholly impossible, principally that which falleth outwards.

The Author seems not to agree with Hipp. Sent. ult. Sect. 3. in the setting downe the kinds of a dislocated Elbow.

The Author doth not agree with Hippocrates and Celsus, in setting downe the notes of these dislocations: for those notes which are here attributed to an outward and inward luxation, these Celsus hath given to an elbow dislocated towards the fore and out part; and those which are here attributed to the elbow dislocated upwards & downwards; those Celsus hath attributed to a dislocation to the out and in sides. Inflammation hinders restitution.

C H A P. XXXII.

How to restore the Elbow, dislocated outwardly.

You may know that the elbow is dislocated outwardly, if at any time you shall observe the arme to be distended, and not able to be bended. Wherefore you must forthwith undertake the restitution thereof, for feare of death, fluxion and inflammation, which the bitternesse of pain usually causeth, upon what part soever the luxation happen. There is one manner of restoring it, which

Signe.

Cure.

which

which is, you must cause one to hold hard and steddily the patients arme a little under the joint of the shoulder, and in the meane while let the Surgeon draw the arme, taking hold thereof with his hand, and also force the shoulder-bone outwards, and the eminency of the cubit inwards, but let him by little and little draw and extend the arme, wresting it gently this way and that way, that he may bring back the bone which fell out into its cavity. I have thus expressely delivered this, that the young Surgeon may understand, that the arme must not be bended for the restoring of this kinde of dislocation; for restitution cannot so be hoped for, because by this kind of luxation the inner proceffe of the cubit possesseth the place of the exterior proceffe in the cavity of the shoulder-bone. Wherefore, whilst the arme is bended or crooked, the cubit is onely lifted up, and not drawne into its seat. But if wee cannot attaine to the restitution thereof with our hands alone, you must cause the dislocated arme lightly bended to embrace a poste, then must the end of the cubit called *Olecranon* be tyed or bound about with a strong ligature or line, and then wrested into its cavity by putting a battoon or staffe into the ligature, as is demonstrated by this ensuing figure.

A Caution.

A figure which shewes the way how to restore the Elbow, by putting it about a poste, with a battoone.



A figure which shewes how to restore the elbow by only casting a line about it.



There is also another more exquisite way of restoring it, which is expressed by the latter figure, wherein a line of some inch breadth is cast about the *Olecranon* of the arme, embracing a poste or pillar, and it is drawn so long, untill the dislocated bone be brought into its seat. Now wee know that the bone is returned into its place, and restored, when the paine ceaseth, and the figure and whole naturall conformation is restored to the arme, and the bending and extending thereof is easie, and not painefull.

CHAP. XXXIII.

Of the dislocation of the Elbow to the inside, and of a compleat and uncompleat luxation.

IF the Elbow be dislocated to the inner part, the arme must be strongly and powerfully extended, then bended quickly and with sudden violence, so that his hand may smite upon his shoulder. Some put some round thing into the bought of the Elbow, and upon that doe suddenly force the Elbow to the shoulder, as we have formerly said. If the Cubit bone be onely lightly moved out of its place into the upper or lower place, it is easily restored by drawing and forcing it into its cavity, after this following manner. Let two extend the arme, taking holde thereof at the shoulder and wrest, and each draw towards himselfe; and also the Surgeon (who shall there be present) shall force the bone which is dislocated from that part whereunto it is bended, unto the contrary: after he shall thus have restored it, he shall lay the arme in a straight angle, and so binde it up, and apply fit medicines formerly mentioned, and so let him carry it in a scarfe put about his necke, as wee said in the dislocation of the shoulder. *Hippocrates* bids, that the patient, after it is set, shall often endeavour to bend his hand upwards and downwards, and also extend and bend his arme, yea, and also to attempt to lift up some heavie thing with his hand; for so it will come to passe, that the ligaments of this joynt may become more softe, ready, and able to performe their accustomed functions, and also the bones of the cubite and shoulder shall bee freed from the affect termed *Ancylosis*, whereto they are incident by the luxations of this part. Now *Ancylosis* is a certaine preternaturall agglutination, co-agmentation, and as it were union of sundry and severall bones in the same joynt, which afterwards hinders the bending and extension thereof. Now, a *Callus* is generated in the Elbow sooner than in any other articulation, whether it remaineth out, or be put into joynt, by reason that by rest and cessation from the accustomed actions, a viscid humor which is placed naturally in the joynts, as also another which is preternaturall, drawne thither by paine, floweth downe, and is hardned, and glewerth the bones together, as I have observed in many, by reason of the Idleness and too long rest of this part. Wherefore, that we may withstand this affect, the whole ligation must be loosed sooner and ofner than otherwise, that is to say, every third day, and then the patients arme must bee gently moved every way. Within the space of twenty, or twenty five dayes, these restored bones recover their strength, sooner or later, according to the happening accidents. It is necessary also that the Surgeon know that the *Radius* or Wand sometimes falleth out when the cubite or Ell is wholly dislocated; wherfore hee must bee mindfull in setting the cubit, that hee also restore the Wand to its place; in the upper part it hath a round proceffe lightly hollowed, wherein it receiveth the shoulder-bone: it hath also an eminencie which admitteth the two-headed muscle:

The cure

Sent. 63. sect. 3.
de fract.

Why the elbow
is most subject
to *Ancylosis*.

CHAP. XXXIV.

Of the dislocation of the Styloformis or bodkin-like proceffe of the cubit or ell.

THe proceffe of the Ell called *Styloides*, being articulated to the wrest by *Diatrochsis*, by which it is received in a small cavity, is dislocated, and falleth out sometimes inwards, somewhiles outwards. The cause usually is the falling of the body from high upon the hands. It is restored, if that you force it into its seat, diligently bind it, & apply thereto very astringent & drying medicines. But yet, though you shall diligently performe all things which may bee done in dislocations, yet you shall never so bring it to passe that this bone shall bee perfectly restored, and absolutely put into the place where hence it went: which

Differences
and causes.

Cure.

thing

Sent. 1. sect. 2.
& sent. ult. sect.
3. de fract.

thing we have read, observed by *Hippocrates*; when (saith he) the greater bone, to wit the Ell, is removed from the other, that is the wand, it is not easily restored to its owne nature againe; for that, seeing that neither any other common connexion of two bones, which they call *Symphysis* or union, when it is drawne asunder and destroyed, may bee reduced into its former nature, by reason these ligaments wherewith they were formerly contained, and as it were continued, are too violently distended and relaxed, whence it happens, that I have in these cases often observed, that the diligence and care of the Surgeon hath nothing availed.

CHAP. XXXV.

Of the dislocation of the Wrest.

Here, as before chap. 31, the Author dissenteth from *Celsus* and *Hippocrates* in expressing the names and signes of these dislocations.



He understand by the wrest, a certaine bony body, consisting of a composure of eight bones knit to the whole cubit by *Diarthrosis*. For the wrest considered wholly in its selfe, is knit and articulated with the Ell & wand: with that, against the little finger; with this, against the thumb: for thus as it were by two connexions, the joint is made more firme. Yet may it be dislocated inwardly, outwardly, & towards the sides. We say it is luxated inwardly when the hand stands upwards, but outwardly, when it is crookt in & cannot be extended. But if it chance to be dislocated sideways, it stands awry either towards the little finger, or else towards the thumbe, as the luxation befalls to this or that side. The cause hereof may seem to depend upon the different dearticulation of the Ell and wand with the hand or wrest. For the wand, which is articulated on the lower part with the wrest at the thumbe, by its upper part, whilest it receives the outward swelling or condyle of the Ell in its cavity, performs the circular motions of the hands. But the cubit or ell, which in like sort is connected on the lower part by *Diarthrosis* at the little finger with the wrest, being articulated on the upper part with the shoulder-bone bends and extends, or stretches forth the hand. There is one way to restore the formerly mentioned dislocations. The arm on one side and the hand on another must be extended upon a hard resisting and smooth place, so that it may lye flat; and you must have a care that the part whence the dislocated bone fell bee the lower in its site and place, and the part whether it is gone, the higher. Then to conclude, the prominencies of the bones must be pressed down by the hand of the Surgeon, untill by the force of compression and site the luxated bones be thrust and forced into their places and cavities.

CHAP. XXXVI.

Of the dislocated bones of the Wrest.

Signe



Cure

He wrest consists of eight bones, which cannot unlesse by extraordinary violence bee put or fall out of their places. Yet if they shall at any time fall out, they will shew it by the tumor of the part wherto they are gone, and by the depression of that wherefrom they are fled. They may bee restored, if the diseased hand bee extended upon a table; and if the bones shall be dislocated inwards, the hand shall bee placed with the palme upwards, then the Surgeon shall, with the palme of his hand, presse downe the eminencies of the bones, and force each bone into its place. But if the luxation bee outwards, he shall lay the palme next to the table, and presse it after the same manner. To conclude, if the luxation shall be toward either side, the luxated bones shall be thrust towards the contrary, and the restored bones shall be presently contained in their places with fit remedies, binding, rowling, and carrying the hand in a scarfe.

CHAP. XXXVII.

Of the dislocated bones of the After-wrest.

Here are foure bones in the Palme or After-wrest, the two middlemost whereof cannot be dislocated sidewayes, because they are hindred and kept from falling aside by the opposition of the parts, as it were resisting them. Neither can that which answereth to the little finger, nor that whereon the forefinger rests, bee dislocated towards that side which is next the middle bones, whereof wee now spake, but onely on the other side, freed from the neighbour-hood of the bones: but all of them may be dislocated inwardly and outwardly. They may be restored as those of the Wrest.

*Celsus lib. 2.
Cap. 12.*

CHAP. XXXVIII.

Of the dislocated Fingers.

Also the bones of the fingers may bee foure severall waies dislocated, inwardly, outwardly, and towards each side. To restore them, they must bee laid straight upon a table, and so put into joint againe. For thus they may bee easily restored, by reason their sockets are not deepe, and their joints are shorter, and ligaments lesse stronge. In twelve dayes space they will recover their strength, as also those dislocations that happen to the Wrest and After-wrest.

Why the dislocated fingers may be easily restored.

CHAP. XXXIX.

Of a dislocated Thigh or Hipp.

The Thigh or Hipp may be dislocated, and fall forth towards all the foure parts. But most frequently inwards, next to that outwards, but very seldom either forwards or backwards. A sublucation cannot happen in this joint, as neither in the shoulder, especially from an externall cause, contrary to which it usually happens in the elbow, hand, knee, and foot. The cause hereof is, for that the heads of the thigh and shoulder-bone are exactly round, and the sockets which receive them have certaine borders and edges encompassing them: hereunto may be added, that strong muscles encompasse each dearticulation, so that it cannot come to passe that part of the heads of such bones may bee contained in the cavity, and other parts stand or fall forth, but that they will quickly bee restored to their places by the motion and wheeling about of the joint, and the strength of the encompassing muscles. But a sublucation may seeme to happen in these parts from an internall cause. For then the ligaments and tyes being softened and relaxed, cannot draw and carry back the head of the bone standing forth so far as the edges of the socket. If the Hip be dislocated towards the inner part, that leg becomes longer and larger than the other, but the knee appeares somewhat lower, and looks outwardly with the whole foote, neither can the patient stand upon his leg. To conclude, the head of the Thigh-bone bewrayes it selfe lying in the groin, with a swelling manifest both to the eye and hand; now the legge is longer than that which is sound, for that the head of the thigh is out of its socket or cavity, and situated lower, to wit, in the groin, therefore the leg is made by so much the larger. Now the knee stands forth, because necessarily the lower head of the thigh-bone stands contrary to the socket. For this is common to all dislocated bones, that when as the dislocation happens towards the one side, the other end of the bone flies out to the contrary.

*Hipp. sent. 62.
sect. 3. de art.*

*Gal. com. ad sent.
47. sect. 4. de art.*

A sublucation may befall the Thigh from an internall cause.

Whence

Whence it is, that if the upperhead of the Thigh-bone shall fall inwards, then the other head, which is at the knee, must necessarily looke outwards. The like happens in other dislocations. The leg cannot be bended towards the groine, for that the dislocated bone holds the extending muscles of the same part so stiffely stretched out, that they cannot yeeld, or apply themselves to the benders. For flexion or bending ought to precede extension, and extension flexion.

C H A P. XL.

Prognosticks belonging to a dislocated Hipp.

Why the thigh-bone dislocated is difficultly restored, or restored easily falls out againe.



The breaking and relaxation of the internal ligament.

Gal. com. ad sent. 42. sect. 4. de art.

Hippocrates explained sect. 1. de art.

Here is this danger in the dislocations of the Hipp, that either the bone cannot bee put into the place againe, at least unlesse with very much trouble, or else being put in, that it may presently fall out againe. For if the tendons of the muscles, the ligaments, and other nervous parts of the member be hard and strong, they by reason of their contumacy and stiffenesse will hardly suffer the bone to returne to its place. If that they bee soft, loose, effeminate and weake, they will not containe the restored bone in its place. Neither will it be any better contained, if that short, but yet strong and round, ligament, which fastens the head of the Thigh-bone on the inside in the Socket or Cavity of the huckle bone, bee broken or relaxed. Now it may be broken by some violent shooke or accident, it may bee relaxed by the congestion and long stay of some excrementitious, tough, and viscous humour lying about the joint, through which meanes it waxeth soft. But if it be broken, how often soever the bone be restored, it will presently fall out againe. If it bee relaxed, there is onely this hope to containe the restored bone, that is, to consume and draw away the heaped up humidity by application of medicines and Cauteries of both kindes, for which purpose those are more effectually which doe actually burne, for that they dry and strengthen more powerfully. Leanenesse of the body, and the want of *Aponeuroses*, that is, of broad tendont and external ligaments, wherof many encompassse the knee, encreases the difficulty of containing it in the place. But the parts adjoyning to the dislocated & not set bone fall away by little & little, and consume with an *Atrophia* or want of nourishment; both because the part it self is forced to desist from the accustomed actions and functions, as also for that the veines, arteries, and nerves being more straitned and put out of their places, hinder the spirits and nourishment from flowing so freely as they ought, to the part: whence it comes to passe, that the part it self made more weak, the native heat being debilitated through idlenesse, it can neither attract the alimentary juice, neither can it digest & assimilate that little therof which flowes and falleth thereto. Verily the Thigh-bone, as long as it is forth of the cavity, growes no more, after the manner as the other bones of the body doe, and therefore in some space of time you may perceive it to bee shorter than the sound bone. Notwithstanding the bones of the legge and foote are not hindered of their growth, for that they are not out of their proper places. Now for that the whole leg appears more slender, you must think that happens only by the extenuation & leanenesse of the proper muscles thereof. The same thing happens to the whole hand, in the largest acception, when as the shoulder is out of joint, unlesse that the calamity and losse hereof is the lesse. For the shoulder being forth of joint you may do something with your hand, whereby it will come to passe that no small portion of nourishment may flow downe into these parts. But the Thigh-bone being dislocated, especially inwards in a child unborn, or an infant, much lesse alimentary nourishment flowes to that part, because it can much lesse use the foot and legge by reason of the dislocation of the Hipp, than it can doe the hand by a luxation of the shoulder. But now wee must thus understand that which is said by *Hippocrates*, That dislocated bones and not restored doe decrease or are hindred from their just growth, to bee onely in those who have not yet attained to their full and naturally appointed growth

growth in every demension. For in men of full growth, the bones which are not restored, become more slender, but yet no shorter, as appears by that which hee hath delivered of the shoulder.

C H A P. X L I.

Of the signes of the Hipp, dislocated outwardly or inwardly.



He thigh-bone or Hipp when it is dislocated outwardly, and not restored, after some time the paine is asswaged, and flesh growes about it, the head of the bone weares it selfe a new cavity in the adjoyning Hipp, whereinto it betakes it selfe, so that at the length the patients may go without a staffe, neither so deformed a leanness will waste their legge. But if the luxation happen inwards, a greater leanness will befall them, by reason that the vessels naturally run more inwardly, as *Galen* observes in the dislocation of the *Vertebra* to the intide; therefore it comes to passe that they are more grievously oppressed: besides the thigh-bone cannot wagge or once stirre against the share-bone: wherefore if the bone thus dislocated bee not restored to its joynt againe, then they must cast their legge about as they walke, just as wee see oxen doe. Wherefore the sound legge whilest they go, takes much lesse space than the lame, because this, whilest it stirreth or moveth, must necessarily fetch a compasse about, but that performeth its motion in a right line. Besides, whilest the patients stand upon their lame legge to put forwards the sound, they are forced to stand crooked, whereupon they are forced to stay themselves with a staffe that they fall not.

*Ad sent. 51. sect. 3
de art.*

Furthermore those who have this bone dislocated either backwards or outwards, so that it cannot bee restored, have the part it selfe grow stiffe and hard; which is the cause why the ham may bee bended without great paine, and they may stand, and goe upon the tops of their toes; besides also, when they desire to goe faster, they are forced to stoope, and strengthen themselves by laying their hand on their lame thigh at every step, both for that their lame legge is the shorter, as also because the whole weight of the body should not lye wholly or perpendicularly upon the joynt or head of the thigh-bone. Yet in continuance of time, when they are used to it, they may goe without any staffe in their hands. Yet in the interim, the sound leg becomes more deformed in the composure & figure, because, whilest it succours the opposite and lame leg by the firme standing on the ground, it beares the weight of the whole body, in performance whercof the ham must necessarily now and then bend. But on the contrary, when as the head of the thigh being dislocated inwards is not put into the joynt, if the patient be arrived at his full growth, after that the head of the bone hath made it selfe a cavity in the neighbouring bone wherein it may rest, he may bee able to walke without a staffe, because the dislocated leg cannot easily be bended towards the groine or ham, and he will sooner rest upon his heele than upon his toes. This kinde of dislocation if it bee inveterate, can never be restored. And these things happen, when as the thigh-bone is dislocated inwards, or when the internall ligament which fastens the dearticulation shall be broken or relaxed. But the contrary shall plainly appeare if the dislocation shall happen to bee outwards; for then the lame legge becomes the shorter, because the head of the thigh flies into a place higher than its cavity, and the muscles of that part are contracted towards their originall, and convulsively draw the bone upwards together with them. The whole leg, together with the knee and foot looketh inwards, they cannot goe upon their heels, but upon the setting on of the toes. The legge may bee bended, which it cannot bee in a dislocation of the thigh inwards, as *Paulus* shewes. Therefore wee must diligently observe that sentence of *Hippocrates* which is read with a negative, in these words. *Sed neque conflectere quemadmodum sanum crus possunt*, that they ought to bee read with an affirmative after this manner. *Sed conflectere &c. quin & crus ipsum &c.* But now the lame legge will better sustaine the weight of the body in an externall, than in an internall dislocation; for then the head of the thigh is more per-

Signes of the
thigh-bone dis-
located out-
wards.

*Paul. Ag. lib. 6.
cap. 8. Hip. sent.
91. sect. 3. lib. de
artic.*

pendicularly subject to the whole weight of the body. Therefore when in successe of time it shall by wearing have made it selfe a cavity in the neighbouring bone, which in time will be confirmed, so that there will remaine no hope of restoring the dislocation, nevertheless the patient shall be able to goe without a staffe, for that then no sense of paine will trouble him; whence it followes, that the whole leg also will become lesse leane, for that going is lesse painfull, neither are the vessels so much pressed as in that dislocation which is made inwardly.

CHAP. XLII.

Of the thigh-bone dislocated forwards.

Stopping of urine by reason of an internal dislocation of the thigh-bone.

T feldome happeneth that the thigh is dislocated forwards; yet when as it shall happen, it is knowne by these signes. The head of the thigh lyeth towards the share; whence the groines swell up, and the buttocke on the contrary is wrinkled and extenuated by reason of the contraction of the muscles; the patient cannot extend his leg without paine, no verily, not so much as bend it towards the groine, for that the fore muscle which ariseth from the haunch-bone, is so pressed by the head of the thigh, that it cannot be distended; neither can the ham be bended without very much paine. But the lame legge is equall at the heel with the other leg, yet the patient cannot stand upon the setting on of the toes; therefore when he is forced to goe, hee toucheth the ground with his heel only, yea, verily the sole of his foot is lesse inclined to the fore side, neither doth it seldome happen, that the urine, by this accident, is supprest; because the head of the thigh oppresses the greater nerves from whence those arise which are carryed to the bladder, which through the occasion of this compression is pained and inflamed by consent: now when inflammation shall seaze upon the *Sphinct* muscle, the urine can scarcely flow out, for that it is hindred by the swelling.

CHAP. XLIII.

Of the thigh-bone dislocated backwards.

Signet.

Seldome also is the thigh-bone dislocated backwards, because the hind part of the cavity of the huckle-bone is deeper and more depressed than the fore; whence it is that the dislocation of the thigh to the inner part is more frequent than the rest. The patient can neither extend nor bend his legge by reason of the much compression and tension of the muscles which encompasse the head of the thigh by this kind of luxation. But the pain is increased when he would bend his ham, for that then the muscles are the more strongly extended. The lame leg is shorter than the sound: when the Buttocks are pressed, the head of the thigh is perceiued hid amongst the muscles of that part; but the opposite groine is laxe, soft, and deprest with a manifest cavity. The heele touches not the ground, for that the head of the thigh is plucked backe againe by the muscles of the buttocks amongst which it lyeth hid, but principally by that which is the larger, and which is said to make as it were the pillow or cushion of the buttocks; for this is much more pressed in this kinde of dislocation than the rest: whence it is, that the patient cannot bend his knee, because the extension of the nervous production or largetendon which covers the knee is so great. But if the patient will stand upon the foot of his luxated legge without a staffe, he shall fall down backwards, for that the body is inclined to that part, the head of the thigh being not directly underneath for the propping or bearing up of the body; wherefore he is forced to sustaine himselfe upon a crutch on his lame side. Having premised these things of the differences, signes, symptomes and prognosticks, it now remaineth, that we briefly describe the

the different wayes of restoring them, according to the difference of the parts whither it is fallen. First, you must place the patient upon a bench or table, groveling, or with his face upwards, or upon one side, laying some soft quilt or coverlid under him, that he may lye the easier. Now you must place him so, that the part unto which the bone is flown, may be the higher, but from whence it is fled, the lower. For if the thigh-bone bee dislocated outwards or backwards, then must the patient bee laid groveling; if inwardly, upon his backe; if forwards, then upon his side. Then must extension and impulsion be made towards the cavity, that so it may bee forced thereinto: but if the dislocation be fresh, & in a soft body, as a woman, childe, and such like, whose joynts are more laxe, it shall not bee any waies needfull to make great extension with strong ligatures for the restoring it; the Surgeons hand shall suffice, or a List or towell cast about it. In the interim the bone shall bee kept fast with compresses applyed about the joynt: then the Surgeon shall extend the thigh, taking hold thereof above the knee, in a straight line, and so set it directly against the cavity, and then presently thrust it thereinto. For thus shall he restore it, if so bee that in thrusting it, hee lift up the head thereof somewhat higher, lest the lips of the cavity force it backe, and hinder it from entring. Now because unlesse there bee just extension, there can be no restitution hoped for, it is farre better in that part, that is, to extend it somewhat more than is necessary, yet so, that you doe not endanger the breaking of any muscles, tendon or other nervous body. For, as *Hippocrates* Sect. 2. lib. de fract. writes, when as the muscles are strong and large, you may safely extend them, it so be that you displace nothing by the force of the extension. If your hand will not suffice to make just extension, you must use the helpe of an Engine, such as is our Pulley, fastened to two postes, so much of the rope being let forth, and drawn up again, as shall suffice for the businesse in hand; in the performance whereof, it is fit that the patients friends absent themselves from this sad spectacle, and that the Surgeon bee resolute, and not deterred from his businesse by no lamentation, neither of the patient nor his friends. But for that we write these things chiefly for the benefit of young practicioners, it seemeth meet, that having delivered these things in general, of restoring the thigh-bone, that we run over these generalities in each particular, beginning with that dislocation which is made inwardly.

C H A P. X L I V.

Of restoring the Thigh-bone dislocated inwards.

IT is fit to place the patient after the foresaid manner, upon a table or bench, in the midst wherof shall stand fastned a wooden pin of a foots length, and as thick as the handle of a spade useth to be; but it must be wrapped about with some soft cloth, lest the hardnesse hurt the buttocks, betwixt which it must stand, as we read that *Hippocrates* did in the extension of a broken leg. The wooden pin hath this use, to hold the body that it may not follow him that draweth or extendeth it; & that the extension being made as much as is requisite, it may go between the *perineum* & the head of the dislocated thigh. For thus there is no great need of counter-extension towards the upper parts; and besides it helpeth to force back the bone into its cavity, the help of the Surgeon concurring, who twining somewhiles to this, & otherwhiles to that side, doth direct the whole work. But when the extension hath need of counter-extension, then it is needfull you have such ligatures at hand, as we have mentioned in the restoring of a dislocated shoulder, to be drawn above the shoulder. One of these shall be fastned above the joynt of the hip, & extended by a strong man; another shalbe cast above the knee by another with the like force. But if you cannot have a wooden pin, another strong & like ligature shalbe put upon the joynt directly at the hip, & held stiffe by the hands of a strong man, yet so that it may not touch the head of the thigh by pressing it, for so it would hinder the restoring thereof. This manner of extension is common to foure kinds of luxation of the thigh-bone. But the maner of forcing the bone into its cavity, must be varied in each, according to the different condition of the parts

The generall cure.

Sect. 2. lib. de fract.

Sect. 2. lib. de fract.

How to make extension and counter-extension in this kind of fractur.

Ligatures made
for extension
must be faste-
ned neere the
part to be ex-
tended.

whereunto the head inclineth; to wit, it must be forced outwards if it bee fallen inwards, and contrary in the rest, as the kind of the dislocation shall bee. Some too clownish and ignorant knot-knitters fasten the lower ligature below the ankle, and thus the joynts of the foot and knee are more extended than that of the hipp or huckle-bone, for that they are neerer to the ligature, & consequently to the active force: but they ought to doe otherwise; therefore in a dislocated shoulder, you shall not fasten the ligatures to the hand or wrest, but above the elbow. But if the hands shall not be sufficient for this worke, then must you make use of engines. Wherefore then the patient being placed as is fit, and the affected part firmly held, some round thing shall be put into the groine, and the patients knee, together with his whole leg shall be drawne violently inwards, towards the other leg. And in the meane while, the head of the thigh shall bee strongly forced towards the cavity of the huckle-bone, and so at length restored, as the following figure shewes.

A figure which manifesteth the way of restoring the thigh-bone dislocated inwards.



A generall
precept.

When the head of the thigh by just extension is freed from the muscles where- with it was infolded, and the muscles also extended that they may give way and yeeld themselves more pliant, then must the rope be somewhat slaked, and then you must also desist from extending, otherwise the restitution cannot bee performed, for that the stronger extension of the engine wil resist the hand of the Surgeon, thrusting and forcing it into the cavity. This precept must bee observed in the restoring of this & other dislocations. You shall know that the thigh is restored by the equality of the legs, by the free & painlesse extension & inflection of the lame leg. Lastly, by the application of agglutinative medicines (whereof we have formerly spoken) the restored bone shal be confirmed in its place; to which purpose ligation shal be made, the ligature being first cast upon the place whereinto the head of the thigh fell, and thence brought to the opposite or sound side by the belly and loynes. In the meane while the cavity of the groine must bee filled with somewhat a thicke bolster which may keep the head of the bone in the cavity. Neither must you omit junks stretched down even to the ankles, as we have observed in the fracture of the thigh. Then must both the thighs be bound together, wherby the dislocated member may be unmove- able, and more & more strengthned. Neither must this dressing be loosed, until foure or five dayes be passed, unlesse peradventure the sudden happening of some other more grievous symptome shall perswade otherwise. To conclude, the patient must bee kept in his bed for the space of a moneth, that the relaxed muscles, nerves and li- gaments may have space to recover their former strength, otherwise, there is danger lest the bone may againe fall out by the too forward and speedy walking upon it. For the site of the thigh it must be placed and kept in a middle figure, yet this middle figure consists in the extension, not in the flexion, as it is demonstrated by Hippocra- tes, for that such a figure is familiar and accustomable to the legge.

See 2. lib. de
fract.

CHAP. XLV.

Of restoring the Thigh dislocated outwardly.

HE patient must bee placed groveling upon a table in this kinde of dislocation also, and ligatures as before, cast upon the hip and lower part of the thigh, then extension must be made downewards, and counter-extension upwards; then presently the head of the bone must bee forced by the hand of the Surgeon into its place. If the hand bee not sufficient for this purpose, our pulley must be used, as the following figure sheweth.

A figure which expresseth the manner of restoring the Thigh luxated outwards.



This kind of dislocation is the easiest, restored of all these which happen in the thigh or hip, so that I have divers times observed the head of the thigh to have been drawne backe into its cavity by the onely regresse of the extended muscles into themselves towards their originals, somewhiles with a noyse or pop, otherwhiles without, which being done, laying a compress upon the joynt, you shall perform all other circumstances as before in an internall dislocation.

When it is that onely extension serves for the restoring the dislocated thigh.

CHAP. XLVI.

Of restoring the Thigh dislocated forewards.

When the thigh is luxated forewards, the patient must bee laid upon his sound side, and tyed as wee have formerly delivered. Then the Surgeon shall lay a Boulster upon the prominent head of the bone, and have a care that his servant firmly hold it: then immediately just extension being made, he shall with his hand force the bone into the cavity; but if his hand will not serve, he shall attempt it with his knee. Then to conclude he shall use the rest of the things formerly mentioned to containe the restored bone.

CHAP. XLVII.

Of restoring the Thigh dislocated backwards.

THe patient shall be placed groveling upon a table or bench, and the member extended, as in the rest, one ligature stretched from the groine, another from the knee; then the Surgeon shall endeavour to force back with his hand that which stands up, and also to draw away the knee from the sound legge. The bone thus placed and restored, the cure requires nothing else, than to be bound up and kept long in bed, lest that the thigh, if it should be moved, the nerves being yet more loose, might againe fall out, For the thigh is in great danger of relapse, for that the cavity of the Huckle-bone is onely deprest, as farre as it goes in, and the burden of the hanging or adjoyning Thigh is heaue.

CHAP. XLVIII.

Of the dislocation of the Whirle-bone of the knee.

The difference.

The cure.

THe Whirle-bone of the knee may fall forth into the inner, outter, upper and lower part; but never to the hinde part, because the bones which it covers doe not suffer it. To restore it, the patient must stand with his foote firmly upon some even place, and then the Surgeon must force and reduce it with his hands from the part into which it is preternaturally slidden. When it shall bee restored, the cavity of the ham shall bee filled up with bolsters, so that he may not bend his leg, for if it be bended, there is no smal danger of the falling back of the whirl-bone. Then a case or box shalbe put about it, on the side especially whereto it fell, being made somewhat flat & round resembling the whirl-bone its self, and it shall bee bound on with ligatures, and medicines so fast that it may not stirre a jot. After the part shall seeme to have had sufficient rest, it is fit that the patient try and accustome by little and little to bend his knee, untill at length hee shall find that he may easily and safely move that joint.

CHAP. XLIX.

Of the dislocated Knee.

The difference.

Ad. mem. lib. 3. de fractis.

How to restore a knee dislocated backwards.

THe knee also may be dislocated three manner of waies, that is, into the inner, outter, and hinde part, but very seldom towards the fore side and that not without some grievous and forcible violence; for the Whirle-bone lying upon it, hinders it from slipping out, and holds it in. The other wayes are easie, because the cavity of the leg-bone is superficially and very smooth, but the cavity of the lower end of the thigh-bone is made in the maner of a spout or gutter, & besides the head thereof is very smooth and slippery; but the whole joint is much more laxe than the joint of the Elbow: so that as it may be the more easily dislocated, so may it the better be restored; and as it may be the more easily, so may it be the more safely dislocated, for that inflammation is lesse to bee feared here, as it is observed by *Hippocrates*. Falls from high, leaping, and too violent running are the causes of this dislocation. The signe thereof is the disability of bending or liting up the legge to the thigh, so that the patient cannot touch his buttocke with his heele. The dislocation of the knee which is inwardly and outwardly is restored with indifferent extension and forcing of the bones into their seats from those parts whereunto they have fallen. But to restore a dislocation made backwards, the patient shall be placed upon a bench of an indifferent height, so that the Surgeon may be behind him

him who may bend with both his hands & bring to his buttocks the patients leg put betwixt his owne legges. But if the restitution doe not thus succeed, you must make a clew of yearn, and fasten it upon the midst of a staffe, let one put this into the cavity of his ham, upon the place whereas the bone stands out, and so force it forwards; then let another cast a ligature of some three fingers breadth upon his knee, and draw it upwards with his hands, then presently and at once they all shall so bend and crooke the lame legge that the heele thereof may touch his buttocks.

CHAP. L.

Of a knee dislocated forwards.

BUt if the knee bee dislocated forwards (which seldome happens) the patient shall be placed upon a table and a convenient ligation made above, The cure, and another cloie beneath the knee. Then the Surgeon shall so long presse downe with both his hands the bone which is out of joint, untill it shall returne to its place againe. To which purpose if the strength of the hand will not serve to make just extension each way, you may make use of our engine, as you may perceive by this following figure.

A figure shewing the manner of restoring a knee dislocated forwards.

You shall know that the bone is restored by the free and paineflesse extension of the legge; then will their bee place for medicines, bouldsters and strengthening ligatures. In the meane space the patient shall forbear going, so long as the part shall seeme to require.

CHAP. LI.

Of the separation of the greater and lesser Focile.

THe *Fibula* or lesser Focile is fastened and adheres to the *Tibia*, leg-bone, The joyning of the leg and shin bones. or greater Focile without any cavity, above at the knee and below at the ankle. But it may bee pluckt or drawne aside three manner of waies, that is, forwards, and to each side: this chance happens when in going we take no sure footing, so that wee slip with our feete this way and that way as in a slippery place, and so wrest it inwards or outwards; for then the weight of our body lying open

The cure.

upon it, drawes the legge, as it were, insunder, so that the one Focile is dislocated or separated from the other. The same may happen by a fall from an high place, or some grievous and bruising blow: besides also, their appendices are sometimes separated from them. For the restoring of all these into their proper places, it is fit they bee drawne and forced by the hand of the Surgeon into their seats: then shall they be straitly bound up, putting compresses to that part unto which the *Fibula* flew; beginning also your ligation at the very luxation, for the forementioned reasons. The patient shall rest forty daies, to wit, as long as shall bee sufficient for the strengthening of the ligaments.

CHAP. LII.

Of the Leg-bone or greater Focile dislocated and divided from the Pasterne bone.

Differences and signes.



As the Leg-bone is sometimes dislocated, and divided from the pasterne bone, as well inwardly, as outwardly; which may bee knowne by the swelling out of the bone to this or that part; if it be onely a subluxation or straine, it may bee easily restored, by gently forcing it into the place againe. After the bone shall be restored, it shall be kept so by compresses and fit deligation, by crosse and contrary binding to the side opposite to that towards which the bone fell, that so also in some measure it may bee more and more forced into its place. In the mean time you must have a care that you doe not too straitly presse the great and large tendon which is at the heele. This kinde of dislocation is restored in forty dayes, unlesse some accident happen which may hinder it.

CHAP. LIII.

Of the dislocation of the Heele.

Causes and differences.



The cure.

Whoever leaping from an high place have fallen very heaue upon their heele, have their heele dislocated and divided from the pasterne bone. This dislocation happens more frequently inwardly than outwardly, because the prominency of the lesser Focile embraces the pasterne bone; whence it is, that there it is more straitly and firmly knit. It is restored by extension and forcing it in, which will be no very difficult matter, unlesse some great defluxion or inflammation hinder it. For the binding up, it must bee straitest in the part affected, that so the blood may be pressed from thence into the neighbouring parts; yet using such a moderation, that it may not bee painefull, nor presse more straitly than is fit, the nerves and grosse tendon which runnes to the heele. This dislocation is not confirmed before the fortieth day, though nothing happen which may hinder it. Yet usually it happeneth that many symptoms ensue by the vehemency of the contusion. Wherefore it will not be amisse to handle them in a particular chapter.

CHAP. LIV.

Of the Symptoms which follow upon the contusion of the Heel.

Why blood-letting necessary in the fracture of a heele.



Hip sect. 3. de fracturis.

It happeneth by the vehemency of this contusion, that the veines and arteries do as it were vomit up blood both through the secret passages of their coates, as also by their ends or orifices, whence an *Ecchymosis* or blacknesse over all the heel, paine, swelling, and other the like ensue, which implore remedies, & the Surgeons helpe, to wit, convenient diet, and drawing of blood by opening a veine (of which though *Hippocrates* makes no mention, yet it is here requisite by reason of the feaver and inflammation) and if need require purgation, princi-

principally such as may divert the matter by causing vomit, and lastly, the application of locall medicines, chiefly such as may soften and rarifie the skin under the heel, otherwise usually hard and thick (such as are fomentations of warme water & oile) so that divers times wee are forced to scarifie it with a lancet, shunning the quicke flesh. For so at length the blood poured forth into the part, and there heaped up, is more easily attenuated and at length resolved. But these things must all bee performed before the inflammation seaze upon the part, otherwise there will be danger of a convulsion. For the blood, when it falls out of the vessels, readily putrefies, by reason the density of this part hinders it from ventilation and dispersing to the adjacent parts. Hereto may be added that the large and great Tendon which covers the heele, is endued with exquisite sense, and also the part it selfe is on every side spread over with many nerves. Besides also there is further danger of inflammation by lying upon the backe and heele, as we before admonished you in the Fracture of a leg. Therefore I would have the Surgeon to bee here most attentive and diligent to performe these things which we have mentioned, lest by inflammation a Gangrene and mortification (for here the sanious flesh presently falls upon the bone) happen together with a continued and sharp feaver, with trembling, hicketting and raving. For the corruption of this part first by contagion assailes the next, and thence a feaver assailes the heart by the arteryes pressed and growing hot by the putride heat, & by the nerves and that great and notable tendon made by the concurrence of the three muscles of the calfe of the legge, the muscles, braine and stomach are evilly affected and drawne into consent, and so cause convulsions, raving and a deadly hicketting.

Why the heele
is subject to inflammation.

Gal. ad sent. 2. 3.
sect. 2. lib. de
fract.

CHAP. LV.

Of the dislocated pasterne or Ankle-bone.



The *Astragalus* or Pasterne bone may bee dislocated and fall out of its place to every side. Wherefore when it falls out towards the inner part, the sole of the foot is turned outwards, when it flies out to the contrary, the sign is also contrary: if it be dislocated to the fore-side, on the hinde side the broad Tendon comming under the heel is hardened and distended; but if it be luxated backwards, the whole heel is as it were hid in the foot: neither doth this kinde of dislocation happen without much violence. It is restored by extending it with the hands, and forcing it into the contrary part to that from whence it fell. Being restored it is kept so by application of medicines and fit ligation. The patient must keepe his bed long in this case, lest that bone which susteines and bears up the whole body, may againe sinke under the burden, and breake out, the sinewes being not well knit and strengthened.

Cure.

CHAP. LVI.

Of the dislocation of the Instep and baske of the foot.



He bones also of the Instep and backe of the foot may be luxated, and that either upwards or downwards, or to one side, though seldome sidewise, for the reason formerly rendred, speaking of the dislocation of the like bones of the hand. If that they stand upwards, then must the patient tread hard upon some plaine or even place, and then the Surgeon by pressing them with his hand shall force them into their places; on the contrary, if they stand out of the sole of the foote, then must you presse them thence upwards, and restore each bone to its place. They may bee restored after the same manner if they bee slowne out to either side. But you must note that although the ligatures consist but of one head

Cure.

Sent. 14. sect. 2.
lib. de fract.

in other dislocations, yet here *Hippocrates* would have such used as have two heads, for that the dislocation happens more frequently from below upwards, or from above downwards, than sidewise.

CHAP. LVII.

Of the dislocation of the Toes.

The differences.



Cure.

Now the Toes may bee foure waies dislocated, even as the fingers of the hand; and they may be restored just after the same manner, that is, extend them directly forth, and then force each joint into its place, and lastly bind them up as is fitting. The restitution of all of them is easie, for that they cannot farre transgresse their bounds. To conclude, the bones of the feet are dislocated and restored by the same meanes as those of the hands, but that when as any thing is dislocated in the foote, the patient must keepe his bed, but when any thing is amisse in the hand, he must carry it in a scarfe. The patient must rest twenty dayes, that is, untill he can firmly stand upon his feet.

CHAP. LVIII.

Of the symptoms, and other accidents which may befall a broken or dislocated member.



Remedies for a contusion.

Any things may befall broken or dislocated members by the meanes of the fracture, or dislocation; such as are bruises, great paine, inflammation, a fever, impostume, gangrene, mortification, ulcer, *fistula*, and *atrophia*, all which require a skilfull and diligent Surgeon for their cure. A contusion happens by the fall of some heauey thing upon the part, or by a fall from high, whence followes the effusion of blood poured out under the skinned: which if it be poured forth in great plenty, must be speedily evacuated by scarification, and the part eased of that burden, lest it should thence gangrenate. And by how much the blood shall appear more thick and the skin more dense, by so much the scarification shall be made more deepe. You may also for the same purpose apply leaches.

What may happen by paine.

Concerning paine wee formerly said, that it usually happens by reason that the bones are moved out of their places, whence it happeneth that they become troublesome to the muscles and nerves by pricking and pressing them. Hence ensue inflammations, as also impostumation and a feaver, oft times a gangrene, and in conclusion a mortification corrupting and rotting the bones; otherwhiles a sinuous ulcer or *fistula*. But an *Atrophia* and leanenesse ariseth by the sloth and idlenesse of the member decaying all the strength therof, and by too strait ligation intercepting the passages of the blood otherwise ready to fall and flow thither.

Remedies for the leanenesse or *Atrophia* of any member.

Now the leanenesse which is occasioned by too strait ligation receives cure by the slackening of the ligatures wherewith the member was bound. That which proceeds from idlenesse is helped by moderate exercise, by extending, bending, lifting up and depressing the member, if so bee that he can away with exercise. Otherwise he shall use frictions and fomentations with warme water. The frictions must be moderate in hardenesse and gentlenesse, in length and shortnesse. The same moderation shall be observed in the warmness of the water, and in the time of fomenting. For too long fomenting resolves the blood that is drawne. But that which is too little or short a space drawes little or nothing at all: after the fomentation, hot and emplastic medicines made of pitch, turpentine, *euphorbium*, pellitory of Spaine, sulphur, and the like, shall be applied. They shall bee renewed every day more often or seldom, as the thing it selfe shall seeme to require.

What measure to be used in fomenting.

These

These medicines are termed *Dropaces*; whose forme is thus *Re. picis nigrae, ammoniaci, bdellii, gummi elemi in aqua vite dissolutorum an. ℥ii. olei laurini ℥i. pulv. e. is. piperis, Zinziberis, granorum paradisi, baccharum lauri et juniperi, an. ℥ii fiat emplastrum secundum artem, extendatur super alutam.* It is also good to binde about the opposite sound part with a ligature, yet without pain; as if the right arme shall decay for want of nourishment, the left shall bee bound, beginning your ligation at the hand, and continuing it to the Arme-pit. If this mischance shall seaze upon the right leg, then the left shall be swathed up from the sole of the foote to the groine. For thus a great portion of the blood is forced back into the *venacava*, or hollow veine, and from this being distended and over full, into the part affected and gaping with the vessels almost empty; besides also it is convenient to keepe the sound part in rest, that so it may draw the lesse nourishment, and by that meanes there will bee more store to refresh the weake part.

A dropax.

Binding of the sound part opposite to the emaciated.

Some will also to bind up the decaying member with moderate ligation; for thus, say they, the blood is drawne thither; for when as wee intend to let blood by opening a veine with a lancet, we bind the arme. Also it is good to dip it into water somewhat more than warme, and hold it there untill it grow red and swell; for thus blood is drawne into the veines, as they find, which use to draw blood of the *sapbena* and *salvatella*. Now if, when as these things and the like bee done, the lame part grow hot, red and swollen, then know that health is to be hoped for; but if the contrary happen, the case is desperate, wherefore you need attempt nothing further.

How to bind up the emaciated part.

Furthermore, there is sometimes hardnesse left in the joints, after fractures and dislocations are restored. It is fit to soften this, by resolving the contained humor by fomentations, liniments, cataplasmes, emplasters made of the roots of Marsh-mallows, briony, lillies, line seed, fenugreek seed, and the like, and also of gums dissolved in strong vinegar, as *Ammoniacum, bdellium, opopanax, labdanum, sagapenum, styrax liquida*, and *Adeps anserinus, gallinaceus, humanus, oleum liliorum*, and the like. Also you must wish the patient to move the part ever now and then, every day, yet so, that it be not painefull to him, that so the pent up humour may grow hot, bee attenuated, and at length dissolved, and lastly the part it selfe restored as farre as art can perform it; for oft times it cannot be helped any thing at all. For if the member be weake and lame by reason that the fracture happened neere the joint, for the residue of his life the motion thereof useth to bee painefull and difficult, and oft times none at all, especially if the *Callus* which grows there be somewhat thick and great, and lastly, if the joint it selfe shall bee contused and broken by the stroake, as it oftentimes happens in wounds made by Gun-shot.

Signes that an Atrophie is curable.

The End of the sixteenth Booke.

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OF
DIVERS OTHER
PRETERNATURALL AF-
FECTS, WHOSE CURE IS
COMMONLY PERFORMED
BY SURGERY.

THE SEVENTEENTH BOOKE.

CHAP. I.

Of an Alopecia, or the falling away of the haire of the head.



N Alopecia is the falling away of the haire of the head, and sometimes also of the eye-browes, chin and other parts; the French commonly call it the *Pelade*. Phisicians terme it the *Alopecia*, for that old Foxes subject, by reason of their age, to have the scab, are troubled oft-times with this disease. This affect is caused either through defect of nourishment fit to nourish the haire, as in old age through want of the radicall humidity, or by the corruption of the alimentary matter of the same, as after long fevers, in the *Lues venerea*, leprosie, the corruption of the whole body and all the humours, whence followeth a corruption of the vapours and fuliginous excrements; or else by the vicious constitution of the pores in the skin in rarity, and constriction or density, as by the too much use of hot oyntments made for colouring the hair, or such as are used to take off haire, therefore called *Depilatoria*, or by the burning of the skin, or losse thereof, having a scarre instead thereof, by reason of whose density the haire cannot spring out, as by too much laxity the fuliginous matter of the haire staves not, but presently vanisheth away. The Alopecia which comes by old age, a consumption, burne, baldnesse, leprosie and a scald head, is incurable: that which admits of cure, the cause being taken away, is helped. Wherefore, if it proceed from the corruption of humours, let a Phisician bee called, who as hee shall thinke it fit, shall appoint diet, purging and phlebotomie. Then the Surgeon shall shave off that haire which is remaining, and shall first use resolving fomentations, apply Leaches and Horns to digest the vicious humour which is under the skin, then shall he wash the head to take away the filth with a lye wherein the roots of Orris and Aloes have been boyled. Lastly, hee shall use both attractive fomentations and medicines for to draw forth the humour which is become laudable in the whole body by the benefit of diet fitly appointed. But if the Alopecia shall happen through defect of nourishment, the part shall bee rubbed so long

*Gale. 2. lib. 2. de
comp. med. secunda
locos.*

The cause.

*What Alopecia
incurable.
What curable,
and how.*

H h h

with

with a course linnen cloth, or a figge leafe, or onions, untill it waxe red; besides also the skin shall bee pricked in many places with a needle, and then ointments applied made of *Labdanum*, pigeons dung, stavifager, oile of bayes, turpentine and waxe, to draw the bloud and matter of the haire. If the haire be lost by the *Lues venerea*, the patient shall be annointed with quicksilver to sufficient salivation. To conclude, as the causes of this disease shall be, so must the remedies be fitted which are used.

C H A P. II.

Of the Tinea, or scalde Head.

Lib. x. de comp.
med. sect. locos.



Cap. 3. lib. citati.

The cure.

For a scaly
scall.

An ointment
for a scalled
head.

The cure of a
crusty scall.

A poultice of
Cresses.

THE *Tinea* (let me so terme it in Latine, whilst a fitter word may be found) or a scald head, is a disease possessing the musculous skin of the head or the hairy scalpe, and eating therinto like a moth. There are three differences thereof, the first is called by *Galen* scaly or branlike, for that whilst it is seratched it casts many branlike scales: some Practitioners terme it a dry scall, because of the great adustion of the humour causing it. Another is called *ficosa*, a fig-like scall, because when it is dispoyled of the crust or scab which is yellow, there appeare graines of quick and red flesh, like to the inner seeds or graines of figges, and casting out a bloody matter. *Galen* names the third *Achor*, and it is also vulgarly termed the corrosive or ulcerous scall, for that the many ulcers wherewith it abounds are open with many small holes flowing with liquid *saries* like the washing of flesh, stinking, corrupt and carrion-like, somewhiles livid, somewhiles yellowish. These holes, if they be somewhat larger, make another difference which is called *Cerion* or *Favosa* (that is, like a honycombe) because as *Galen* thinks, the matter which floweth from these, resemblenth hony in colour and consistence. They all proceed of an humour which is more or lesse vicious, for a lesse corrupt humour causeth a scaly, a more corrupt, the fig-like, but the most corrupt produceth the ulcerous. If it shall happen to an infant by reason of the fault and contagion of the nurse, or else presently after it is borne, it scarce admits of cure; neither must we attempt that before the child come to that age, that he may be able to endure the cure & medicines. But you may in the meane while apply the leaves of Colworts or beets besmeared with fresh butter, or other gentle medicine having a faculty to mollifie and open the passage for the shut up matter. Those who are of sufficient age to away with medicines, may bleed, purge, barbe, according to art by the advice of a Phisician. For local medicines in a scaly scall, softning and discussing fomentations shall bee appointed, made of the roots of marsh-Mallows, Lillies Docks, Sorrell boyled in lye with a little vineger added thereto. The head shall bee twice in a day fomented with such a decoction, and on the sixth day the haire being shaven off, it shall bee scarified, and then leaches and hornes put to it so scarified. Then it shall be forthwith annoynted with oyle of stavifager mixed with blacke sope, both to draw & repress the malignity of the humour impact in the part. You may also use the following medicine even to the perfect cure of the disease, as that which is much commended in this kind of disease by *Vigo*, *Gordonius*, and *Guido*; it is thus made. *Rx. elieb albi & nigri attrament. auripigmenti, lithargyri auri, calcis viva, vitriol. alum. galla. fulig. ciner. facis vini usti, an ʒ ʒ. argenti vivi extincti, ʒiij. aruginis aris ʒiij. fiat pulvis qui incorporetur cum succo boraginis, scabiosa, fumarie, oxylapathi, aceti, an quart. i. olei antiqui lib. i. bulliant usque ad consumpt succorum, in fine decoctionis ciner. ponantur, addendo picis liquida ʒ ʒ. cera quantum sufficit, fiat unguentum*: These authors testifie that this will heale any kind of scall. Certainly none can disallow of it who well considereth the engredients and compoture thereof.

A crusty also or fig-like scall shall bee so long fomented with the prescribed fomentation, untill the crusts or scabs fall off, yet there is nothing to good and effectual as Cresses beaten or tryed with hogs suet. For it will make it fall off in the space of foure and twenty houres, besides, if it be continued it will heale them thoroughly, as I have knowne by experience, and reason also stands therewith; for according to

Galen,

Galen, Cresses are hot and dry. When the crusts shall bee fallen away, the parts affected shall bee annoynted with the formerly prescribed ointment. I have cured many with a little oyle of vitrioll, and sometimes also with *Ægyptiacum* made somewhat more strong than ordinary. But if the root of the haire appeare rotten; they shall bee plucked out one by one; yet if such putrefaction shall possesse the whole hairy scalpe, and trouble all the roots of the haire, that you may plucke them out the more readily, & with lesse paine, you may besmeare a cotten cloth on the rougher side with this following medicine. *Rx. picis nigra ʒvi. picis res. ʒii. pul. viridis aris, & vitriol. rom. an. ʒi. vel ʒʒ. sulphur. viv. ʒʒ. coquantur omnia simul in aceti acerrimi quantitate sufficiente, fiat medicamentum ad usum:* let it be applyed to the head, and remaine on for two dayes; then let it bee quickly and forcibly plucked away against the haire, that so the haire sticking to the plaister may by that meanes be plucked away therewith: you shall use this medicine so long as need shall seem to require.

Lib. 7. simpl.
A plaister to pluck away the haire at once.

For the third kind of scall which is termed a Corrosive or ulcerous, the first indication is to cleanse the ulcers with this following ointment. *Rx. unguenti enulati cum mercurio duplicato, ægyptiaci, an. ʒiiii. vitriol. albi in pulverem redacti ʒi. incorporentur simul, fiat unguentum ad usum;* also you may use the formerly described ointment. But if any paine or other accident fall out, you must withstand it by the assistance and direction of some good Physitian; verily these following medicines against all kinds of Scalls have been found out by reason, and approved by use. *Rx. Camphur. ʒʒ. alum. roch. vitriol. vir. aris, sulph. vivi, fulig. forn. an. ʒvi. olei amygd. dulcium & axungia porci, an. ʒii. incorporentur simul in mortario, fiat unguentum.* Some take the dung which lyeth rotting in a sheep-fold; they use that which is liquid, & rub it upon the ulcerated places, & lay a double cloth dipped in that liquor upon it. But if the patient cannot be cured with all these medicines, & that you find his body in some parts thereof troubled in like sort with crusty ulcers, I would wish that his head might be anointed with an ointment made of *Axungia, argentum vivum,* & a little *Sulphur,* & then fit some *emplastrum Vigonis cum mercurio* into the fashion of a cap; also some plaisters of the same may be applyed to the shoulders, thighs and legs, and so let him be kept in a very warme chamber, and all things done as if he had the *Lues venerea*. This kinde of cure was first (that I know of) attempted by *Simon Blanch* the Kings Surgeon, upon a certaine young man, when as he in vaine had diligently tryed all other usuall medicines. A scalled head oft-times appeareth very loathsome to the eye, casting forth virulent and stinking sanies; at the first it is hardly cured, but being old, far more difficultly. For divers times it breaketh out afresh, when you thinke it kild, by reason of the impression of the maligne putrefaction remaining in the part, which wholly corrupts the temper thereof. Moreover, oft-times being healed, it hath left an *Alopecia* behind it, a great shame to the Surgeons. Which is the reason, that most of them judge it best to leave the cure thereof to Empericks and women.

The cure of an ulcerous scall.

A contumacious scall must be cured as we cure the *Lues Venerea*.

CHAP. III.

Of the Vertigo, or Giddinesse.



THE *Vertigo* is a sudden darkening of the eyes and sight by a vaporous & hot spirit which ascendeth to the head by the sleepey arteries, and fills the braine, disturbing the humours and spirits which are conteyned there, & tossing them unequally, as if one ran round, or had drunk too much wine. This hot spirit oft-times riseth from the heart upwards by the internall sleepey arteries to the *Rete mirabile*, or wonderfull net; otherwhiles it is generated in the brain, its selfe being more hot than is fitting; also it oft-times ariseth from the stomach, spleen, liver and other entrals being too hot. The signe of this disease is the sudden darkening of the sight, and the closing up as it were of the eyes, the body being lightly turned about, or by looking upon wheelles running round, or whirle pits in waters,

What the *Vertigo* is, and the causes thereof.

The signe.

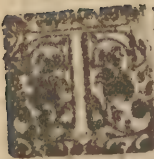
Lib. 6.

A criticall Vertigo.

ters, or by looking downe any deepe or steep places. If the originall of the disease proceed from the braine, the patients are troubled with the head-ach, heavinesse of the head, and noyse in the eares, and oft-times they lose their smell. *Paulus Aeginetia* for the cure bids us to open the arteries of the temples. But if the matter of the disease arise from some other place, as from some of the lower entrals, such opening of an artery little availeth. Wherefore then some skilfull Phisitian must be consulted with, who may give directions for phlebotomie, if the original of the disease proceed from the heat of the entrals; by purging, if occasioned by the foulness of the stomach. But if such a *Vertigo* be a criticall symptome of some acute disease affecting the *Crisis* by vomit or bleeding, then the whole businesse of freeing the patient thereof must be committed to nature.

CHAP. IV.

Of the Hemicrania, or Megrim.



The differences.

In what kind of Megrim the opening of an Artery is good.

A history.

THE Megrim is properly a disease affecting the one side of the head, right, or left. It sometimes passeth no higher than the temporall muscles, otherwhiles it reacheth to the toppe of the crowne. The cause of such paine proceedeth eyther from the veynes and externall arteries, or from the *meninges*, or from the very substance of the braine, or from the *pericranium*, or the hairy scalpe covering the *pericranium*, or lastly, from putride vapours arising to the head from the ventricle, wombe, or other inferiour member. Yet an externall cause may bring this affect, to wit, the too hot or cold constitution of the encompassing ayre, drunkenness, gluttony, the use of hot and vaporious meates, some noysome vapour or smoake, as of Antimony, quick-silver, or the like, drawne up by the nose, which is the reason that Goldsmithes, and such as gilde mettals are commonly troubled with this disease. But whence soever the cause of the evill proceedeth, it is either a simple distemper, or with matter: with matter, I say, which againe is either simple or compound. Now, this affect is either alone, or accompanied with other affects, as inflammation and tension. The heaviness of head argues plenty of humour; pricking, bearing and tension shewes that there is plenty of vapours mixed with the humours, and shut up in the nervous, arterious, or membranous body of the head. If the paine proceed from the inflamed *meninges*, a fever followeth thereon, especially, if the humour causing paine doe putrefie. If the paine be superficially, it is seated in the *pericranium*. If profound, deepe and piercing to the botome of the eyes, it is an argument that the *meninges* are affected, and a feaver ensues, if there be inflammation, and the matter putrefie; and then oft times the tormenting paine is so great and grievous, that the patient is affraid to have his head touched, if it be but with your finger, neither can hee away with any noyse, or small murmuring, nor light, nor smells however sweet, no nor the fume of Vine. The paine is sometimes continuall, otherwhiles by fits. If the cause of the pain proceed from hot, thin & vaporious blood, which will yeeld to no medicines, a very necessary, profitable & speedy remedy may be had by opening an artery in the temples, whether the disease proceed from the internall or externall vessels. For, hence alwayes ensueth an evacuation of the conjunct matter, blood and spirits. I have experimented this in many, but especially in the Prince de la Roche-sur-yon. His Physicians, when hee was troubled with this grievous Megrim, were *Chaplain*, the Kings, and *Castellane*, the Queenes chiefe Phisitians, and *Lewes Duret*, who notwithstanding could helpe him nothing by blood-letting, cupping, bathes, frictions, diet or any other kind of remedy either taken inwardly or applyed outwardly. I being called, said, that there was onely hope one way to recover his health, which was to open the artery of the temple in the same side that the paine was; for I thought it probable, that the cause of his pain was not contained in the veins, but in the arteries, in which case by the testimony of the ancients, there was nothing better than the

ope.

opening or bleeding of an artery, whereof I had made tryall upon my selfe to my great good. When as the Physitians had approved of this my advice, I presently betake my selfe to the work, and choose out the artery in the pained temple, which was both the more swolne and beat more vehemently than the rest. I open this, as wee use to doe in the bleeding of a veine, with one incision, and take more than two sawcers of blood flying out with great violence, and leaping; the paine presently ceased, neither did it ever molest him againe. Yet this opening of an Artery is suspected by many, for that it is troublesome to stay the gushing forth blood, and cicatrize the place, by reason of the density, hardnesse, and continuall pulsation of the artery, and lastly, for that when it is cicatrized there may be danger of an *Aneurisma*. Wherefore they thinke it better first to divide the skin, then to separate the artery from all the adjacent particles, and then to binde it in two places, and lastly divide it, as we have formerly told you must be done in *Varices*. But this is the opinion of men who fear all things where there is no cause; for I have learnt by frequent experience that the apertion of an artery, which is performed with a Lancet, as wee doe in opening a veine, is not at all dangerous; and the consolidation or healing is somewhat slower than in a veine, but yet will bee done at length, but that no flux of blood will happen, if so bee that the ligation be fitly performed, and remaine so for foure dayes with fitting pledgets.

No danger in
opening an artery.

CHAP. V.

Of certaine affects of the eyes, and first of staying up the upper eye-lidde when it is too laxe.



Of the diseases which befall the eyes, some possess the whole substance thereof, as the *Ophthalmia*, a *Phlegmon* thereof: others are proper and peculiar to some parts thereof, as that which is termed *Gutta serena* to the opticke nerve. Whence *Galen* made a threefold difference of the diseases of the eyes, as that some happened to the eye by hurting or offending the chiefe organ thereof, that is, the crySTALLINE humour; others by hindering the animall faculty, the chiefe causer of sight, from entring into them; and lastly, other some by offending the parts subservient to the prime organ or instrument. Now of all these diseases, the eye hath some of them common with the other parts of the body, such as are an ulcer, wound, *phlegmon*, contusion and the like: other some are peculiar and proper to the eye, such as are the *Agilops*, *Cataracta*, *Glaucoma*, and divers others of this kinde. Some have their upper eye-lid fall down, by reason that the upper skin thereof is relaxed more than is sufficient to cover the eye, the gristle in the meane while not relaxing it selfe together therewith. Hence proceeds a double trouble; the first, for that the eye cannot bee easily opened; the other, because the haire of the relaxed eye-lid run in towards the eye, and become troublesome thereto by pricking it. The cause of such relaxation is either a particular palsie of that part, which is frequent in old people, or the defluxion or falling downe of a watrish humour, and that not acride or biting; which appears by this, that those who are thus affected have a ranke of haire growing under the naturall ranke, by reason of the abundance of heaped up humour, as it is most probable. For thus a wet and marish ground hath the greatest plenty of grasse. Now if this same humour were acride, it would cause an itching, and consequently become troublesome to the patient, and it would also fret insunder and destroy the roots of the other haire, so farre it is from yeelding matter for the preternaturall generation of new. It is fit, before you doe any thing for the cure, that you marke with inke the portion thereof which is superfluous, and therefore to be cut away, lest if you should cut off more than is requisite, the eye-lid should remaine turned up, and so cause another kinde of affect, which the ancients have called *Ectropion*. Then the eye being covered, take and lift up with your fingers the middle part of the skin of the eye-lid, not taking hold of the gristle beneath it, and then cut it athwart, taking away just so much

Differences.

Paul. Agin. lib. 2.
cap. 6.

The cause.

The cure.

as shall be necessary to make it as it were naturall; lastly, joine the lips of the wound together with a simple suture of three or foure stiches, that so it may bee cicatrized; for the cicatrization restraines the cie-lid from falling downe so loosly, at least some part thereof being taken away. There ought to be some measure, and heed taken in the amputation, otherwise you must necessarily run into the one or other inconvenience, as if too much be cut away, then the eye will not bee covered, if too little, then you have done nothing, and the patient is troubled to no purpose. If there shall bee many haire growne preternaturally, you shall plucke them away with an instrument made for the same purpose; then their roots shall be burned with a gentle cautery, the eye being left untoucht, for a scar presently arising will hinder them from growing againe.

CHAP. VI.

Of Lagophthalmus, or the Hare eye.



Such as have their cie-lids too short, sleep with their eyes open, for that they cannot be covered by the too short skin of the eye-lids: the Greekes terme this affect, *Lagophthalmos*. The cause is either internall or externall: internall, as by a Carbuncle, Impostume, or Ulcer: externall, as by a wound made by a sword, burn, fall, & the like. If this mishap proceed by reason of a cicatrization, it is cureable, if so that the short eye-lid be of an indifferent thicknesse. But if it have bin from the first conformation, or by some other meanes, whereby much of the substance is lost, as that which happens by burning and a carbuncle, then it is uncureable. For the cure, you shall use relaxing and emollient fomentations, then the skinne shall be divided above the whole scarre, in figure of an halfe moon, with the hornes looking downwards. Then the edges of the incision shall bee opened, and lint put into the middle therof, that so it may hinder the lips from joyning together againe. Then shall you apply a plaster upon the lint, and so bind up the part with a fitting ligature that may somewhat presse upon the whole eye, lest it should lift it selfe somewhat upwards againe, and so returne into its ancient, but not naturall figure. But in cutting the skinne, you must take care that your incision harme not the gristle; for if it be cut, the cie-lid falls downe, neither can it be afterwards lifted up. But now for the lower eye-lid: it is subject to sundry diseases, amongst which there is one which answereth in proportion to that, which we late mentioned, which is, when as it is lifted upwards little or nothing, but hangs and gapes, and cannot bee joyned with the upper, and therefore it doth not cover the eye, which affect is familiar to old people; it is called *Ectropion*, and it may be helped by the means formerly delivered.

Paulus Aegin.
lib. 6. cap. 10.

The cure.

Ectropion, or
the turning up
or out of the
Eye-lid.

CHAP. VII.

Of the Chalazion, or Haile-stone, and the Hordeolum or Barly-corne of the eye-lids.



The *Chalazion* is a round and cleere pimple which growes upon the upper cie-lid; it is also moveable and may be stirred this way and that way with your fingers: the Latines call it *Grando*, for that it resemles a Hail-stone. Another pimple not much unlike this growes sometimes upon the verges of the eye-lids above the place of the haire. It is termed *Hordeolum*, by reason of the similitude it hath with a barly corne. The matter of these is contained in its proper cyst or skin, and therefore is hardly brought to suppuration. At the first beginning it may be resolved and discussed. But when as it is once growne and concrete into a plaster or stone-like hardnesse, it is scarce cureable. Wherefore it is best to performe

Paul. cap. 16.
lib. 6.

The cure.

performe the cure by opening them, that so the contained matter may flow, or bee pressed forth. If the pimple or swelling bee small, then thrust it through with a needle and thread, and leave the thread therein of such length that you may fasten the ends thereof with a little of the emplaster called *Gratia Dei* like glew to the forehead, if it be on the upper eye-lid, or to the cheeks, if on the lower. You must draw through a fresh one every second day, as is usually done in chirurgicall setons. For thus at length the swelling will be destroyed and made plaine.

CHAP. VIII.

Of the Hydatis or Fatnesse of the Eye-lids.

The *Hydatis* is a certaine fatty substance like a peece of fat seated and lying under the skinne of the upper eye-lid. It is a disease incident to children, who are of a more humid nature: wherefore it is a tort and loose tumour making the whole eye-lid, which it possesseth, oedematous; so that, as if depressed with a weight, it cannot be lifted up. It hath its name, for that it hath as it were a bladder distended with a whayish humour, which kinde of fault is observed by *Galen* in the liver. Those, who are thus affected, have their eyes looke red, and flow with teares, neither can they behold the sun, or endure the light. The cure is performed by cutting off the superfluous substance, not hurting the neighbouring parts, and then presently put some salt into the place whence it was taken out (unless the vehemency of paine hinder) that so the place may bee dried and strengthened, and the rest of the matter (if any such be) may be consumed, and hindered from growing againe. Lastly, you shall cover the whole eye with the white of an Egge dissolved in rose-water, or some other repercussive.

What *Hydatis* is.

Com. ad aphor. 55. sect. 7.

The cure.

CHAP. IX.

Of the Eye-lids fastened or glewed together.

Sometimes it commeth to passe that the upper eye-lid is glewed or fastened to the under, so that the eye cannot be opened, or so that the one of them may sticke or bee fastened to the white coat of the eye, or to the horny. This fault is sometimes drawne from the first originall, that is, by the default of the forming faculty in the wombe (for thus many infants are born with their fingers fastened together, with their fundaments, privities and eares unperforated) the eye in all other respects being well composed. The cause of this affect sometimes proceeds from a wound, otherwhiles from a burn, scald or impostumation, as the breaking of the small pox. It is cured by putting in a fit instrument, & so opening them; but with such moderation, that you touch not the horny coat, for otherwise it would fall out. Therefore you must put the end or point of your probe under the eye-lids, and so lifting them up (that you hurt not the substance of the eye) divide them with a crooked incision knife.

Paulus cap. 15. lib. 6.

The cause 3

The cure:

The incision made, let the white of an egge beaten with some rose-water be put into the eye; let the eye-lids be kept open, yea let the patient himself be carefull that he often turne it upwards, and lift it up with his fingers, not onely that the medicine may bee applyed to the ulcer, but also that they may not grow together againe. In the night time let a little pledget dipped in water, and that either simple, or wherein some vitrioll hath bin dissolved, bee laid thereon. For thus you shall hinder the eye-lids from joyning together againe. Then on the third day the parts or edges of the eye-lids shall be touched with waters drying without biting or acrimony, that so they may be cicatrized. But if the eye-lid adhere to the horny coate at the *pupilla* or apple of the eye, the patient will either bee quite blind, or very ill of sight. For the scarre which ensues will hinder the shapes of things from entring to the crystalline humour

A disease sub-
ject to relapse.

humour, and the visive spirits from passing forth to the objects. For prognostickes, you may learne out of *Celsus*, that this cure is subject to a relapse, so that it may bee shunned neither by diligence nor industry, but that the eye-lid will alwayes adhere and cleave to the eye.

CHAP. X.

Of the itching of the Eye-lids.

A detergent
collyrium.



Many have their Eye-lids itch vehemently by reason of salt phlegme, which often times excoriating and exulcerating the parts themselves, yeelds a *sanies*, which joynes together the eye-lids in the night time as if they were glewed together, and maks them watry and bleared. This affect doth so torment the patients, that it oft times makes them require the Physitians helpe. Wherefore generall medicines being premised, the Ulcers shall be washed with the following Collyrium. *Rx. aqua mellis in balneo maria destillata ℥i. sacchari candi. ʒi. aloës lota & in pollinem redacta ʒ℥. fiat collyrium.* Which if it doe no good, you may use this which followes. *Rx. Ung. Ægyptiac. ʒi. dissolve in aqua plantaginis quantitate sufficienti.* Let the ulcerated eye-lids be touchd with a soft linnen rag dipped therin, but with care that none thereof fall upon the eye. But when the patient goes to bed, let him cause them to be anointed with the following ointment, very effectually in this case. *Rx. axungia porci et butyri recentis, an. ʒ℥. tuth. prepar. ʒ℥. antimon. in aqua euphrasia preparati, ʒii. camphora gra. iiii. misce, et in mortario plumbeo ducantur per tres horas, conflatum inde unguentum, servetur in pyxide plumbea.* Some commend and use certaine waters fit to cleanse, dry, binde, strengthen, and absolutely free the eye-lids from itching and rednesse; of which this is one.

Rx. aqua euphrag. faniculi, chelidon. an. ʒ℥. sarcocol. nutrita ʒii. vitriol. rom. ʒi. miscantur simul & bulliant unica ebullitione; postea coletur liquor, & servetur ad usum dictum. Or else. *Rx. aqua ros. & vini alb. boni an. ʒii. tuth. prepar. aloës an. ʒi. flor. ani ʒii. camphor. gra. ii.* Let them bee boyled according to art, and kept in a glasse to wash the eye-lids. Or else, *Rx. vini albi ʒ℥. salis com. ʒi.* let them be put into a cleane barbers bason and covered, and kept there five or six dayes, and bee stirred once a day, and let the eye-lids bee touched with this liquor. Some wish that the patients urine be kept all night in a barbers bason, and so the patients eye-lids be washed therewith. Verily in this affect we must not feare the use of acride medicines, for I once saw a woman of fifty yeares of age, who washed her eye-lids when they itched with the sharpest vinegar she could get, and affirmed that she found better successe of this than of any other medicine. *Vigo* prescribes a water whose efficacy above other medicines in this affect, hee saith, hath bin proved; and that it is to bee esteemed more worth than gold, the description thereof is thus. *Rx. aq. ros. vini albi odoriferi medicis vinositatis an. ʒii. myrobalan. citrini trit. ʒ℥. thuris ʒii. bulliant omnia simul usque ad consumptionem tertiae partis; deinde immediate addantur floris aris ʒii. camph. gr. ii.* Let the liquor be kept in a glasse well stopped for the foresaid use.

You need not
feare to use a-
cride medi-
cines in the it-
ching of the
eye-lids.
*Lib. 2. cap. 4.
tra 2. 3.*

CHAP. XI.

Of Lippitudo, or Bleare-eyes.



Here are many whose eyes are never dry, but alwaies flow with a thinne, acrid and hot humour, which causeth roughnesse, and upon small occasions inflammations, blear or blood-shot eyes, and at length also *Strabismus* or squinting. *Lippitudo* is nothing else but a certaine white filth flowing from the eyes, which oft times agglutinates or joynes together the eye-lids. This disease often troubles all the life time, and is to be cured by no remedy: in some it

What Lippitudo
is.

is cureable. Such as have this disease from their infancy, are not to be cured, for it remaines with them till their dying day. For large heads, and such as are replete with acride or much excrementitious phlegme, scarce yeeld to medicines. There is much difference whether the phlegme flow downe by the internall vessels under the scull, or by the externall which are betweene the skull and the skin, or by both. For if the internall veines cast forth this matter, it will be difficultly cured, if it bee cured at all. But if the externall vessels cast it forth, that cure is not unprofitable, which having used medicines respecting the whole body, applyes astringent medicines to the shaved crown, as *Empl. contrarupturam*, which may streighten the veines, and as it were suspend the phlegme, useth cupping, and commands frictions to be made towards the hinde part of the head, and lastly, maketh a Seton in the necke. There are some who cauterize the toppe of the crowne with a hot iron, even to the bone, so that it may cast a scaille, thus to divert and stay the defluxion. For locall medicines, a *Collyrium* made with a good quantity of rosewater, with a little vitrioll dissolved therein, may serve for all.

A *Collyrium* of vitrioll to stay the affluxions of the eyes.

CHAP. XII.

Of the Ophthalmia, or inflammation of the Eyes.

IN *Ophthalmia* is an inflammation of the coate *Adnata* and consequently of the whole eye, being troublesome by the heate, rednesse, beating, renitency, and lastly paine. It hath its originall either by some primitive cause or occasion, as a fall, stroake, dust, or small sand flying into the eyes. For the eye is a smooth part, so that it is easily offended by rough things, as saith *Hippocrates*, lib. de carnibus. Or by an antecedent cause, as a defluxion falling upon the eyes. The signes follow the nature of the materiall cause, for from blood especially cholerike and thin, it is full of heat, rednesse and paine; from the same allayed with phlegme all of them are more remisse. But if a heavinesse possesse the whole head, the original of the disease proceeds therfrom. But if a hot pain trouble the forehead, the disease may be thought to proceed from some hot distemper of the *Dura mater*, or the *pericranium*; but if in the very time of the raging of the disease the patient vomit, the matter of the disease proceeds from the stomacke. But from whence soever it commeth there is scarce that paine of any part of the body, which may be compared to the paine of the inflamed eyes. Verily the greatnesse of the inflammation hath forced the eyes out of their orbe, and broken them asunder in divers. Therefore there is no part of Physicke more blazed abroad than for sore eyes. For the cure, the Surgeon shall consider and intend three things, diet, the evacuation of the antecedent and conjunct cause, and the overcoming it by topicke remedies. The diet shall bee moderate, eschewing all things that may fill the head with vapours; and those things used that by astringtion may strengthen the orifice of the ventricle, and prohibite the vapours from flying up to the head; the patient shall bee forbidden the use of wine, unlesse peradventure the disease may proceed from a grosse and viscid humour, as *Galen* delivers it. The evacuation of the matter flowing into the eye, shall bee performed by purging medicines, phlebotomy in the arm, cupping the shoulders and neck with scarification, and without: and lastly, by frictions, as the Physitian that hath undertaken the cure shall thinke it fit. *Galen* after universall remedies for old inflammations of the eyes, commends the opening of the veines and arteryes in the forehead and temples, because for the most part the vessels therabouts distended with acride, hot and vaporous blood, cause great & vehement paines in the eye.

What *Ophthalmia* is, and the causes thereof.

Signes.

The cure.

Com. ad aphor. 31. sect. 6.

Galen Lib. 13. meth. cap. ult.

For the impugning of the conjunct cause, divers topick medicines shall be applied, according to the four sundry times or seasons that every phlegmon usually hath. For in the beginning, when as the acride matter flowes downe with much violence, repercussives doe much conduce: and tempred with resolving medicines, are good also in the encrease. *R. aq. ros. et plantag. an. ʒss. mucagin. gum. Tragacanth. ʒii. al-*

buine

A repulsive medicine. *bum.ovi quod sufficit, fiat collyrium*, let it bee dropped warme into the eye, and let a double cloth dipped in the same *collyrium* bee put upon it. Or, *Rx. macag. sem. psil. & cydon. extracta in aq. plant. an. 3℔. aq. solan. & lactis muliebris, an. 3i. trochisc. alb. rha. 3i. fiat collyrium*, use this like the former. The veins of the temples may be streightened by the following medicine. *Rx. bol. arm. sang. drac. & mast. an. 3i. ℔. alb. ovi, aqua ros. & acet. an. 3i. tereb. lot. & ol. cidon. an. 3i. ℔. fiat defensivum*. You may also use *Ung. de Bolo, empl. diacal. or contrarupturam* dissolved in oyle of myrtles, and a little vinegar. But if the bitternesse of the paine be intolerable, the following cataplasme shall be applied. *Rx. medul. pomor. sub. ciner. coctorum. 3iii. lactis muliebris 3℔.* let it be applied to the eye, the formerly prescribed *collyrium* being first dropped in. Or, *Rx. macag. sem. psil. & cidon. an. 3℔. mica panis albi in lacte infusi, 3ii. aqua ros. 3℔. fiat cataplasma*. The blood of a turtle Dove, Pigeon or Hen drawne by opening a veine under the wings, dropped into the eye, allwageth paine. Baths are not onely anodine, but also stay the defluxion by diverting the matter thereof by sweats; therefore Galen much commends them in such defluxions of the eyes as come by fits. In the state when as the paine is either quite taken away or asswaged, you may use the following medicines. *Rx. sarcocol. in lacte muliebri nutrita, 3i. aloës lota in aq. rosar. 3ii. trochisc. alb. rha. 3℔. sacchar. cand. 3ii. aqua ros. 3iii. fiat collyrium*. Or, *Rx. sem. faniculi. & fanuz. an. 3ii. flo. chama. & melil. an. m. ℔. coquantur in aq. com. ad 3iii. colatura adde tuthia prap. & sarcoc. nutrita in lacte muliebri. an. 3i. ℔. sacchari cand. 3℔. fiat collyrium ut artis est*. In the declination the eye shall be fomented with a carminative decoction, and then this *collyrium* dropped thereinto. *Rx. sarcoc. nutrita 3ii. aloës & myrrh. an. 3i. aq. ros. & euphrag. an. 3ii. fiat collyrium ut artis est*.

Astringent emplastra.

An anodine cataplasme.

The efficacy of Baths in pains of the eyes.
Adaphor. lib. 7.

Detergent Collyria.

CHAP. XIII.

Of the Proptosis, that is, the falling or starting forth of the eye, and of the Phthisis, and Chemosis of the same.



The cause.

He Greekes call that affect *Proptosis*, the Latines *proidentia* or *Exitus oculi*, when as the eye stands, and is cast out of the orbe by the occasion of a matter filling and lifting up the eye into a greater bignesse, and largenesse of substance. The cause of this disease is sometimes externall, as by too violent straying to vomit, by hard labour in child-birth, by excessive and wondrous violent shouting, or crying out. It sometimes happeneth that a great and cruel paine of the head, or the too strait biading of the forehead and temples for the easing thereof, or the palsie of the muscles of the eye, give beginning to this disease. Certainly sometimes the eye is so much distended by the defluxion of humors, that it breakes insunder, and the humours thereof are shed, and blindenesse ensues thereof, as I remember befell the sister of *Lewis de Billy* merchant, dwelling at Paris near *S. Michael's* bridg. The cure shall be diversified according to the causes. Therefore universall medicines being premised, cupping glasses shalbe applied to the originall of the spinall marrow, and the shoulders; as also cauteries, or Setons: the eye shall be pressed or held downe with clothes doubled and steeped in an astringent decoction made of the juice of *Acacia*, red roses, the leaves of poppy, henbane, roses and pomegranate pills: of which things poultisses may bee made by addition of barley meale and the like.

The cure.

The Atrophie of the eye.

There is sometimes to bee seene in the eye an affect contrary to this, and it is termed *Atrophie*. By this the whole substance of the eye growes lanke and decays, and the apple it selfe becomes much lesse. But if the consumption and emaciation take hold of the pupill onely, the Greekes, by a peculiar name and different from the generall, terme it a *Phthisis*, as *Paulus* teacheth. Contrary causes shall bee opposed to each affect; hot and attractive fomentations shall be applied; trictions shall be used in the neighbouring parts, and lastly all things shall be applied which may without danger be used to attract the blood and spirits into the parts.

The Phthisis the eot.
Lib. 3. cap. 23.

There is another affect of the eye, of affinity to the *Proptosis*, which by the Greeks

is termed *Chemosis*. Now this is nothing else than when both the eye-lids are turned up by a great inflammation, so that they can scarce cover the eyes, and the white of the eye is lifted much higher up than the blacke. Sometimes the *Adnata* changing his wont, looketh red; besides also, this affect may take its originall from externall causes, as a wound, contusion and the like. But according to the variety of the causes, and the condition of the present affect fixed and remaining in the part, divers remedies shall be appointed.

The *Chemosis*.
Paulus li. 3. cap. 2.

CHAP. XIV.

Of the Ungula, or Web.

THE *Ungula*, *Pterygion* or Web is the growth of a certaine fibrous and membranous flesh upon the upper coate of the eye called *Adnata*, arising more frequently in the bigger, but sometimes in the lesser corner towards the temples. When it is neglected, it covers not onely the *Adnata*, but also some portion of the *Cornea*, and coming to the pupill it selfe hurts the sight thereof. Such a Web

sometimes adheres not at all to the *Adnata*, but is onely stretched over it from the corners of the eye, so that you may thrust a probe betweene it and the *Adnata*: it is of severall colours, somewhiles red, somewhiles yellow, somewhiles duskiish, & otherwhiles white. It hath its originall either from externall causes, as a blow, fall, and the like; or from internall, as the defluxion of humours into the eyes. The *Ungula* which is inveterate, and that hath acquired much thickeesse and breadth, and besides doth difficultly adhere to the *Adnata*, is difficultly taken away, neither may it be helped by medicines whereby scars in the eyes are extenuated. But that which covereth the whole pupill must not be touched by the Surgeon, for being cut away, the scar which is left by its density hindereth the entrance of objects to the cristalline humour, and the egress of the animall spirit to them. But oftentimes it is accompanied with an inflammation of the eyes, a burning itching, weeping defluxion, and swelling of the eye-lids. That the cure may rightly and happily proceed, hee must first use a spare diet, purging medicines shall be given, and blood taken away by opening a veine, especially, if there be great inflammation. For particular remedies, this excrescence shall be eaten away, or at least kept from growth by dropping into the eye *collyrium* of vitrioll described in wounds of the eyes. But if that wee profit nothing by this meanes, it remaineth, that wee take it away with the hand after the following manner.

What Web curable, and what incurable.

The cure,

You shall set the patient upon a forme or stoole, and make him leane much backe, and be so held firmly, that he may not fall nor stirre; then must you open his fore eye, putting therein the *speculum oculi* formerly described in treating of the wounds of this part, and then must you lift up the Web it selfe with a sharpe little hook, with the point turned a little in, and put under the midst of the Web; when you have lifted it a little up, thrust a needle threaded with a smoth threed between it & the *Adnata*, then taking hold of the hooke, and the two ends of the threed drawne through with the needle, and lifting up the Web by them, you shall gently begin to separate it from the substance of the eye lying there-under, beginning at the originall thereof with a crooked incision knife, and so prosecute it even to the end, yet so as you hurt no part of the *Adnata*, nor *Cornea*.

The cutting of the Web.

The

The figures of little hookes, a needle, and crooked incision knife.

Little Hookes.

A needle.

A crooked incision knife.



Then must it bee cut off with a paire sissers, and the white of an egge beaten with some Rose-water laid thereon, and often renewed. Afterwards the eye must every day be opened, lest comming to cicatrization, the eye-lids shall be glewed together in that part whereas the Web is taken away, which also shall bee hindred by putting of common salte, sage and cummin seeds into the eye, being first champed and chawed in the mouth. There are some who in stead of the crooked knife separate the Web from the *Adnata* with a horses haire, others do it with a goose quill made ready for the same purpose, taking heed that they hurt not the caruncle at the corner by the nose, for it will follow if that you draw the Web away too violently; and if it be cut, there wil remain a hole, through which during the rest of the life a weeping humour will continually flow, a disease by the Greekes termed *Rhyas*. If after the cutting, there be fear of inflammation, linnen rags moystned in repelling medicines, formerly prescribed in wounds of the eye, shall bee layd thereupon.

CHAP. XV.

Of the *Ægilops*, fistula lachrimosa, or weeping Fistula of the eye.

The use of the glandule at the greater corner of the eye.

The differences.

Periodicall and Typicall Fistulaes.



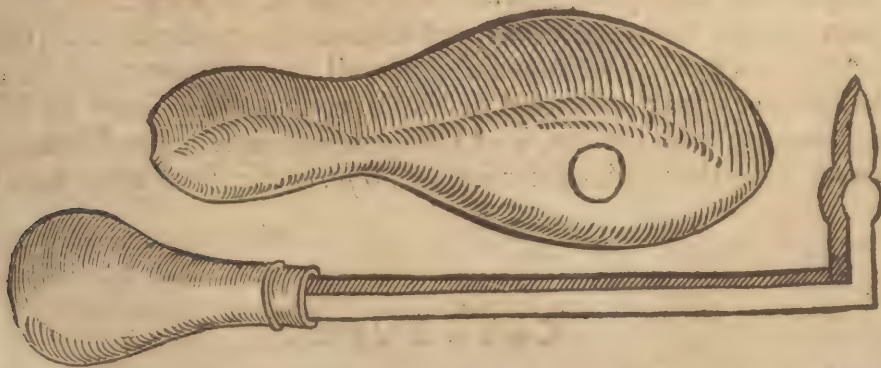
At the greater corner of the eye there is a glandule, made for the receiving and contayning the moysture which serveth for the lubricating and humecting the eye, least it should dry by continuall motion. This Glandule sometimes by a sanguine or pituitous defluxion falling violently from the brain, swels, impostumates & ulcerates with an ulcer, not seldome degenerating into a fistula, so that in successe of time it rotteth the bone that lyeth under it: of such fistulaes, some are open outwardly, and these usually have their originall from a phlegmon; other some are inwardly, and those are such as at first swelled by the defluxion or congestion of a phlegmaticke matter, so that there appeareth no hole outwardly, but onely a tumor of the bignesse of a pease; this tumor being pressed, floweth with a sanious, serous and red, or otherwise with a white and viscid matter, and that either by the corner of the eye, or by the inside of the nose. Some have this matter flowing continually, others have it onely monethly, which is proper also to some fistulaes. Such weeping fistulaes if they become old, cause an *Atrophia* of the eye, & sometimes blindness, & a stinking breath. Therefore wee must diligently and speedily by phisicall and chirurgicall meanes resist the breeding disease. Wherefore, having used generall medicines, we must come to particulars. Therefore if the ulcer be not sufficiently wide, it shall bee enlarged by putting tents of sponge therein.

therein. The flesh of the Glandule encreasing more than is fit, shall be corrected by putting therein the catharteticke pouders of Mercury, calcined vitrioll, or some *aqua fortis*, or oyle of vitrioll, and lastly, by a potentiall cautery. If you cannot prevaile by these meanes, and that the bone begins to rot, and the patient bee stout hearted, then use an actuall cautery whose use is far more effectually, ready, certaine and excellent than a potentiall cautery, as I have tryed in many with happy successe. In my opinion it makes no matter, whether the cautery be of gold, silver or iron; for the efficacy it hath, proceedeth not from the matter, but from the fire. Yet if wee must religiously observe and make choise of mettals, I had rather have it of Iron, as that which hath a far more drying and astringent faculty than gold, for that the element of earth beareth the chiefe sway therein, as appeareth by the waters which flow through iron mines. Wherefore you shall cause to be made a triangular Iron, sharpe at the end, that it may the more speedily penetrate. And then the sound eye and adjacent parts being well covered and defended, and the patients head firmly holden in ones hands, lest the patient being frightened, stirre himselfe in the very instant of the operation. But a plate of iron somewhat depressed in the midst, for the cavity of the greater corner, shall be applyed and fitted to the pained eye. This plate shall be perforated that the hot Iron may passe thereby to the fistula lying thereunder; and so may onely touch that which is to be cauterized.

The cure.

The efficacy of an actuall cautery.

The figure of a cautery, and a plate with a hole therein.



After the bone is burnt with the cautery, a *collyrium* made of the whites of egges beaten in plantaine and nightshade waters must be poured into the hole it selfe, the eye and all the neighbouring parts; but the patient shall bee layd in bed, with his head somewhat high, and the *collyrium* shall be renewed as often and as soone as you shall perceiv it to grow dry. Then the fall of the Eschar shall be procured by anointing it with fresh butter; when it is fallen away, the ulcer shall be cleansed, filled with flesh, and lastly cicatrized.

Things to be done after the cauterizing.

CHAP. XVI.

Of the Staphiloma, or grape-like swelling.



Staphiloma is the swelling of the horney and grape-like coat, bred through the occasion of an humor flowing downe upon the eye, or by an ulcer, the horney coat being relaxed, or thrust forth by the violence of the pustule generated beneath. It in shape resembleth a grape, whence the Greekes stile it *Staphyloma*. This tumor is sometimes blackish, otherwhiles whitish. For if the horney coat bee ulcerated and fretted in sunder, so that the grapie coat shew it selfe, and fall through the ulcer, then the *Staphyloma* will looke blacke like a ripe grape, for the utter part of the *Uvea* is blackish. But if the *Cornea* bee onely relaxed and not broken, then the swelling appeares of a whitish colour like an unripe grape. The Ancients

What a Staphiloma is, and the causes thereof.

Paulus and Aetius.

Every *Staphylo-*
ma infers incur-
rable blindness.

broken *Cornea* by which the *Uvea* sheweth or thrusteth forth its selfe, they then termed it *Myocephalon*, that is, like the head of a fly. But if the hole were large, and also callous, they called it *Clavus*, or a naile; If it were yet larger, then they termed it *A-cinus*, or a grape. But in what shape or figure soever this disease shall happen, it bringeth two discommodities, the one of blindness, the other of deformity. Wherefore here is no place for surgery to restore the sight, which is already lost, but onely to amend the deformity of the eye; which is by cutting off that which is prominent. But you must take heed that you cut away no more than is fit, for so there would be danger of pouring out the humors of the eye.

CHAP. XVII.

Of the Hypopyon, that is, the suppurate or putrefied eye.

The cause.



*H*YPOPYON, or Quitture is sometimes gathered between the horny and grapy coate from an internall, or externall cause; From an internall, as by a great defluxion, and oft times after an inflammation, but externally, by a stroke, through which occasion a veine being opened hath poured forth blood thither, which may presently be turned into Quitture. For the cure, universall remedies being premised, cupping-glasses shall bee applied, with scarification, and frictions used. Anodine and digestive *collyria* shall be poured from above downewards. *Galen* writes that he hath sometimes evacuated this matter, the *Cornea* being opened at the *Iris*, in which place all the coats meet, concur and are terminated. I have done the like, and that with good successe, *James Guillemeau* the the Kings Surgeon being present, the Quitture being expressed and evacuated after the apertion. The Ulcer shall be clenfed with *Hydronel*, or some other such like medicine.

Lib. 14. method.
cap. ult.

CHAP. XVIII.

Of the Mydriasis, or dilatation of the pupill of the eye.

The cause.



*M*YDRIASIS is the dilatation of the pupill of the eye; and this happeneth either by nature or chance; the former proceedeth from the default of the first conformation, neither is it curable; but the other is of two sorts; for it is either from an internall cause, the off-spring of an humour flowing downe from the braine, wherefore Phisicall meanes must bee used

The cure.

for the cure thereof. Now that which commeth by any externall occasion, as a blow, fall or contusion upon the eye, must bee cured by presently applying repercussive and anodyne medicines, the defluxion must be hindred by diet skilfully appointed, phlebotomie, cupping, scarification, frictions, and other remedies which may seeme convenient. Then must you come to resolving medicines; as the bloud of a Turtle Dove, Pigeon, or Chicken reeking hot out of the veine, being poured upon the eye and the neighbouring parts. Then this following cataplasme shall be applyed thereto. *Rx. farina fabar. & hordei an. ʒi. iii. ol. rosar. & myrtillor. an. ʒi. ʒ. pul. ireos flor. ʒii. cum sapa fiat cataplasma.* You may also use the following fomentation. *Rx. rosar. rub. & myrtill. an. m. l. florum melil. & chamem. an. p. i. nucum cupress. ʒi. vimi austeri lb. ʒ. aq. rosar. & plantag. an. ʒi. iii.* make a decoction of them all for a fomentation to be used with a sponge.

A digesting
Cataplasme.

CHAP. XIX.

Of a Cataract.



Cataract is called also by the Greeks *Hypochyma*, by the Latines, *A Cataract*, *suffusio*. Howsoever you terme it, it is nothing else but the concretion of an humour into a certaine thin skin under the horny coat, just against the apple or pupill, and as it were swimming upon the watery humour; and whereas the place ought to be empty, opposing it selfe to the internall faculty of seeing, whereby it differeth from spots and scars growing upon the horny

The differences

coate and *Adnata*. It sometimes covereth the whole pupill, otherwhiles but the one halfe thereof, and somwhiles but a small portion thereof. According to this variety the sight is either quite lost, weake, or somewhat depraved, because the animall visive spirit cannot in its entire substance passe through the density thereof. The defluxion of the humour whence it proceeds, is either caused by an external occasion, as a stroake, fall, or by the heat or coldnesse of the encompassing ayre; trouble some to the head and eyes; or else it is by an internall meanes, as the multitude; or else the acride hot and thin quality of the humours. This disease also sometimes taketh its originall from grosse and tumid vapours sent from a crude stomacke, or from vaporious meats or drinks, up to the braine, and so it falleth into the eyes, where by the coldnesse, straitnesse and tarrying in the place, they turn into moysture, and at length into that concretion or filme which wee see: The signs may be easily drawne, from that we have already delivered. For when the cataract is formed and ripe, it resembleth a certain thin membrane spread over the pupill, and appeareth of a different colour, according to the variety of the humour whereof it consisteth, one while white, another while blacke, blew, ash-coloured, livid, citrine, Greene. It sometimes resembleth quicksilver, which is very trembling and fugitive, more than the rest. At the first when it beginneth to breed they seeme to see many things, as flies flying up and downe, haire, nets, and the like, as if they were carelessly tossed up and down before their eyes: sometimes every thing appeareth two; and somwhiles lesse than they are; because the visive spirit is hindered from passing to the objects by the density of the skin, like as a cloud shadowing the light of the Sun. Whence it is that the Patients are duller sighted about noone, and surer and quicker sighted in the morning and evening, for that the little visive spirit diffused through the aire, is dispersed by the greater light, but contracted by the lesse. Now if this filme cover halfe the pupill, then all things shew but by halfe; but if the midst thereof be covered and as it were the center of the Christalline humour, then they seeme as if they had holes or windowes: but if it cover it all, then can hee see nothing at all, but onely the shadowes of visible bodies, and of the Sun, Moone, Stars, lighted candles, and the like luminous things, and that but confusedly and as by conjecture.

Causes.

Signes.

CHAP. XX.

The physcull cure of a beginning Cataract.



Beginning Cataract is hindred from growing and concretion by diet conveniently and artificially prescribed, by the abstinence from wine, especially more strong and vaporious, and forbearing the use of meates, which yeeld a flegmaticke iuice and vaporious, as pease, beanes, turneps, chesnuts, and lastly all such things as have the faculty of stirring up the humours, and causing defluxion in the body, such as are all salt & spiced meats, as also garlike, onions, mustard. The immoderate use of venery hurts more than all the rest, for that it more violently exagitates the whole body, weakens the braine and head, and begets crude humours:

Diet for such as are troubled with a Cataract.

Bread seasoned
with fennell
seeds.

How bright shi-
ning things may
dissipate a be-
ginning Cata-
ract.

A Collyrium dis-
siping a begin-
ning Cataract.

A Cataract
must not be
couched unless
it be ripe.

Let his bread be seasoned with some fennell seeds, for it is thought to have a faculty of helping the sight, and clearing the eyes, and dissipating the misty vapours in the stomacke before they can ascend to the brains. Wherefore by the same reason it is good to use marmelade of quinces, conserve of roses, and common drige powder, or any such like composed of things good to break wind, or corroborate the ventricule. Phlebotomie and purging, if they be requisite, shall be fitly appointed: Vento-fes shall be applyed to the shoulders and necke; the phlegmaticke matter shall be diverted and evacuated by the mouth with using masticatories in the morning. There be some which believe that a beginning cataract may be dissipated and discussd by often rubbing the eye-lids with the fingers, and in like sort by the often and earnest beholding of the Starres, and the Moone when it is at the full, looking-glasses, diamonds, and all other such like bright shining things. I beleeve that by beames plentifully and suddenly brought and diffused over the eye, directly opposite against some bright shining thing, it may seeme to have a penetrating, dividing, dissolving, as also a consuming and drying faculty. Besides, also the hot breath of him who holdeth in his mouth, and chaweth fennell-seeds, aniseeds, coriander-seeds, nutmeg, cinamon, cloves, and the like, hath a great faculty, the eyes being first gently rubbed with the finger, it being breathed in, neare at hand and often received, to heat, attenuate, resolve, digest, and diffuse the humour which is ready to concrete. Moreover, this collyrium of *John Vigo* is thought very powerfull to cleare the eyes, strengthen the sight, hinder suffusions, and discuss them if at any time they concrete and beginne to gather. *Rx. hepatis hircini sani & recentis lib. ii. calami aromatici & mellis an. 3℔. succi ruta, 3i. aqua chelidonia, faniculi, verbenia euphrosia, an. 3i. piperis longi, nucis moschata, caryophyllorum an. 3ii. croci ʒi. floris roris marini aliquantum contriti, m. 8. sarcocolla, aloës hepatica, an. 3i. fellus raia, leporis & perdicis, an. 3i. terantur omnia, tritisque adde sacchari albi 3ii. mellis rosati 3vi. conjiciantur in alembicum vitreum & distillentur in balneo Maria;* Let this distilled liquor bee often dropped into the eyes. But if you prevaile nothing by all these medicines, and that the cloudy and heaped up humour doth daily encrease and thicken, then must you abstaine from remedies, and expect untill it bee no more heaped up, but thickned, yea untill it seeme to be growne somewhat hard. For so at length it may bee couched with a needle; otherwise if this same skin shall not be ripe, but more tender than is fitting, when you shall come to the operation, it will be broken and thrust through with the needle, and not couched. On the contrary, if it bee too hard, it will resist the needle, neither will it suffer it selfe to bee easily couched. Wherefore it is requisite that the Surgeon know when it is ripe, and he must diligently observe the signes whereby he may discern a ripe Cataract from an unripe; and that which is cureable, from that which is incurable. For that only which is ripe and curable is to be couched; that which is unripe, that is, such an one as is more tender, and as it were crude, and that which is more hard and dense, and lastly, that which is uncureable must not bee attempted at all.

CHAP. XXI.

By what signes ripe and curable cataracts may bee discerned from
unripe and incurable ones.

IF the sound eye being shut, the pupill of the sore or suffused eye, after it shall be rubbed with your thumbe, bee presently dilated and diffused, and with the like celerity returne into the place, figure, colour and state, it is thought by some to shew a ripe and confirmed cataract. But an unripe and not to bee couched, if the pupill remaine dilated and diffused for a long while after. But it is a common signe of a ripe, as also more dense and consequently incurable suffusion, to bee able to see nor distinguish no visible thing beside light and brightnesse; for to discern other objects sheweth that it is not yet ripe. Therefore the sound eye being shut and pressed, the pupill of the other rubbed with

with your thumbe, is dilated, enlarged, swelleth and is more diffused; the visive spirits by this compression being as it were forced from the sound into the sore eye. But these following cataracts are judged incurable, that is, such as are great, such as when the eye-lid is rubbed are nothing dilated or diffused, whose pupill becommeth no broader by this rubbing: for hence you may gather that the stopping or obstruction is in the opticke nerve, so that how cunningly and well soever the cataract bee couched, yet will the Patient continue blind; you shall do no more good in couching a cataract, which is in an eye consumed and wasted with a *Phthisis*. Also that cataract is incurable which is occasioned by a most grievous disease, to wit, by most bitter and cruell paines of the head, or by a violent blow. Such as are of a plaister-like, green, blacke, livid, citrine and quicksilver-like colour, are usually incurable. On the contrary, such as are of a Chestnut colour, or of a skye or sea-water colour, with some little whitnesse, yeeld great hope of a happy and successfull cure.

Uncurable Cataracts.

Curable Cataracts.

CHAP. XXII.

Of the couching a Cataract.

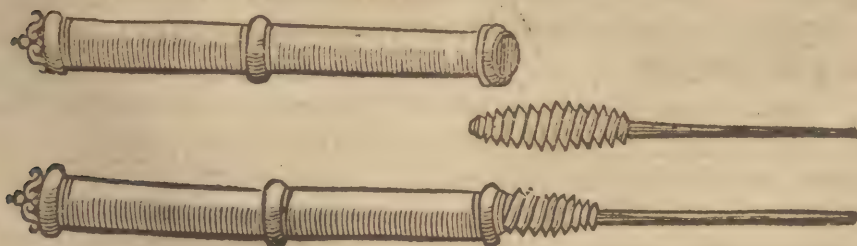
After you shal know by the forementioned signes, that the Cataract is curable, it remains that you attempt the couching thereof, but so, that there be nothing which may hinder. For if the paine of the head, cough, nauſeousnes or vomiting at that time trouble the patient, you shal then bestow your labour in vaine: Wherefore you must expect untill these lympomes be gone. Then make choice of a season fitting for that purpose, that is, in the decrease of the moon, when the aire is not troubled with thunder nor lightening, and when as the Sunne is not in Aries, because that signe hath dominion over the head. Then let the Surgeon consult a Physitian whether purging or bloud-letting be convenient for the Patient, so to resist plethoricke symptomes, otherwaies ready to yeeld matter for relapse. Two dayes after you must make choice of a place furnished with indifferent or competent light, and the Patient being fasting shall be placed in a strait chaire, so that the light may not fall with the beames directly upon him, but sidewise. The eye which shall bee cured must bee made more steddye, by laying and binding wooll upon the other: Then the Surgeon shall seate and place himselfe directly against the Patient upon a seat somewhat higher, and bidding the Patient put his hands downe to his girdle, he shall hold the patients legges betweene his knees. One shall stand at the Patients backe who shall hold his head and keepe it from stirring; for by a little stirring hee may lose his sight for ever. Then must you prepare and make ready your needle, and thrust it often into some strong thicke cloth, that it may bee as it were smoothe by this motion, and for the performance of the worke in hand with the lesse paine somewhat warmed. It must bee made of iron or Steele, and not of gold or silver, it must be also flatted on the sides, and sharpe pointed, that so it may the better pierce into the eye, and wholly couch the Cataract once taken hold of; and lest it should slip in the Surgeons hand, and be lesse steddye, it shall bee put into a handle, as you may see by the following figure.

When to couch a Cataract.

The place.

The needle.

A needle inserted in a handle for the couching of Cataracts.



Gal. lib. 10. de usu
partium. cap. 5.
Cul. lib. 7.

The signe of a
Cataract well
couched.

Lib. 6. cap. 21.

What to be
done after the
couching of a
Cataract.

Of a Cataract
which is broken
to peeces.

All things being thus in a readinesse, you must bid the patient to turne the sight of his eye towards his nose, and the needle must be boldly thrust (for it is received in a place that is voyde, and onely filled with spirits) directly by the coat *Adnata*, in the middle space between the lesser corner & the horny coat, just against the midst of the Cataract, yet so, as that you hurt no vein of the *Adnata*, & then by stirring it as it were diversly untill it come to the midst of the pupill and suffusion. When it is come thither, the needle must bee inclined from above downewards to the suffusion, and there to be stirred gently untill by little and little it couch or bring downe the Cataract as whole as may be beneath the compasse of the pupill; let him still follow it though couched with his needle, and somewhat violently depresse, and keep it down for some short space, that so it may rest and stay in that lower place whether it is depressed. The Surgeon shall try whether it firmly remaine there or no, bidding the patient presently to move his eye; For if it remaine constantly so, and doe not returne againe, the cure is perfect. Then must the needle be lifted up by little and little, neither must it presently be taken forth, that if the Cataract should beare up, or rise againe, that it might againe, and so often (whilst the worke is yet hot, and all things in a readinesse) be couched towards the lesser corner, untill it be fully and surely hid. Then must you draw backe the needle gently, and after the same manner as you put it in; lest if you use not moderation, you bring backe the Cataract, from whence you couched it, or grievously offend the crystalline humour, the prime instrument of sight, or the pupill with danger of dilating thereof. Some as soone as the worke is done, give the patient something in his hand to looke upon: but *Paulus* approves not thereof, for hee feares lest his endeavouring or striving to see, may draw backe the Cataract. Wherefore it is more wisdome and better, presently after the drawing forth of the needle, to put on a soft ragge the white of an egge beaten in rose-water with a little choice alume, and so apply it to the eye and neighbouring parts for to binde and hinder the inflammation; then also you must together therewith bind up the sound eye, lest by stirring to see, it might together therewith draw and move the sore eye, by reason of the sympathy and consent they mutually have by the opticke nerves. After all things are thus performed, the patient shall bee laid in a soft bed, & so placed, that his head may lye somewhat high; let him be laid far from noise, let him not speake, nor eate any hard thing that may trouble his jawes, wherefore let him feed upon liquid meats, as ponado, barley cream, cullisses, gellyes, reare eggs, and other meates of the like nature. At the end of eight dayes the ligature that binds up his eyes shall be loosed, and his eyes washed with rose water, and putting on spectacles, or some taffary, the patient shall by little and little accustome himselfe to the light, lest hee should bee offended by the sudden meeting with light. But if the suffusion, after some short while after, lift it selfe up againe, it must bee couched againe, but through a new hole, for the eye is pained and tender in the former place. It sometimes happens by the touch of the needle that the Cataract is not couched whole, but is broken into many peeces; then therefore each of them must be followed, and couched severally: if there be any very small particle which scapes the needle, it must bee let alone, for there is no doubt but that in processe of time it may be dissolved by the force of the native heat. There are also some Cataracts which at the first touch of the needle are diffused & turne into a substance like to milke or troubled water, for that they are not thoroughly ripe, yet these put us in good hope of recovery, and it bee but for this, that they can never afterwards concrete into one body as before. Wherefore at the length they are also dissolved by the strength of the native heat, and then the eye recovers its former splendor. If that any other symptomes come unlooked for, they shall be helped by new counsels and their appropriate remedies.

CHAP. XXIII.

*Of the stopping of the passage of the eares, and the falling
of things therinto.*



L Sometimes happeneth that children are born without any holes in their eares, a certaine fleshy or membranous substance grow-
ing in their bottome or first entrance. The same may also hap-
pen afterwards by accident, they being ulcerated by some impo-
stume or wound; and the eare shut up by some fleshy excrescence
or scar. Whenas the stopping is in the bottome of the cavity, the
cure is more difficult than if it were in the first entrance. But there

The cause.

is a double way of cure; for this substance, whatsoever it be, must either be cut out,
or else eaten away and consumed by acrid and catheriticke medicines; in perfor-
mance of which there is need of great moderation of the mind and hand. For it is a
part endued with most exquisite sence and neare the braine, wherefore by handling
it too roughly, there is feare of distension of the nerves, and consequently of death.

The cure.

Sometimes also the preternaturall falling of strange bodies into this passage,
maketh a stopping of the eares, such as are fragments of stones, gold, silver, iron and
the like mettals, pearles, cherry-stones, or kernels, pease and other such like pulse.
Now solid and bonie bodies still retain the same magnitude; but pease, seeds and
kernels, by drawing the moisture there implanted into them, swell up, and cause ve-
hement pain by the distension of the neighbouring parts, wherefore the sooner they
are drawne forth, the better it is for the patient. This shall be done with small pin-
cers and instruments made in the shape of earepicks. But if you profit nothing thus,
then must you use such gymblets as are made for the drawing forth of bullets shot
deep into the body. Little stones and bodies of the like stony hardnesse shall bee
forced forth by the brain, provoked to concussion by sneezing, & by dropping some
oyle of almonds first into the passage of the eare, that the way may be the more slip-
pery; for it will come to passe by this sneezing, or violence of the internall aire for-
cibly seeking passage out, that at length they may bee cast forth, the mouth and
nostrils being stopped with the hand. But it wee cannot thus prevaile, it remaines,
that we cut open the passage with an incision knife, so much as shall be sufficient for
the putting in and using of an instrument for to extract them. If any creeping things
of little creatures, as fleas, ticks, pismires, gnats and the like, which sometimes hap-
peneth, shall get therein, you may kill them by dropping in a little oyle and vineger.
There is a certaine little creeping thing, which for piercing and getting into the
eares, the French call *Perse-oreille* (wee an Eare-wigge). This, if it chance to get into
the eare, may be killed by the foresaid meanes, you may also catch it, or draw it forth
by laying halfe an apple to your eare, as a bait for it.

*The convulsive
force of snee-
ling.*

CHAP. XXIV.

*Of getting of little bones and such like things out of the jawes
and throate.*



Sometimes little bones and such like things in eating greedily use to
sticke, or as it were fasten themselves in the jawes or throate. Such bo-
dies if you can come to the sight of them shall bee taken out with long,
slender and crooked mallers made like a Cranes beake. If they do not ap-
pear, nor there be no means to take them forth, they shalbe cast forth by
causing vomit, or with swallowing a crust of bread, or a dry fig gently chewed, and
so swallowed; or else they shall be thrust downe into the stomacke, or plucked back
with a leeke, or some other such like long and stiffe crooked body annoynted with
oile and thrust downe the throate. If any such like thing shall get into the Weazon
you

*The cure diffe-
rent according
to the places
where they
sticke.*

you must cause coughing by taking sharpe things, or else sneezing, so to cast forth whatsoever is there troublesome.

CHAP. XXV.

Of the Tooth-ache.

The Tooth ach
a most cruell
paine.



The cause
thercof.

Signes of this
or that de-
fluxion.

Three scopes
of curing.

A cold & reper-
cussive lotion
for the mouth.

Trochisces for
a hot defluxion.

Narcoticks.

F all paines, there is none which more cruelly tormenteth the patients than the Tooth-ache. For wee see them oft-times after the manner of other bones to suffer inflammation, which will quickly suppurate, and they become rotten, and at length fall away piecemeale; for wee see them by daily experience to be eaten and hollowed, and to breed wormes, some portion of them putrefying. The cause of such paine is either internall, or externall and primitive. The internall is a hot or cold defluxion of humours upon them, filling their sockets, & thence consequently driving out the teeth; which is the reason that they stand sometimes so farre forth, that the patient neither dares nor can make use of them to chew for feare of paine; for that they are loose in their sockets by the relaxation of the gums, caused by the falling downe of the defluxion. When as they are rotten and perforated even to the roots, if any portion of the liquor in drinking, fall into them, they are pained as if you thrust in a pin or bodkin, the bitternesse of the paine is such. The signes of a hot defluxion are sharpe and pricking paine, as if needles were thrust into them, a great pulsation in the roote of the pained tooth and the temples, and some ease by the use of cold things. Now the signes of a cold defluxion are a great heavinesse of the head, much and frequent spitting, some mitigation by the use of hot remedies. In the bitternesse of paine we must not presently run to Tooth-drawers, or cause them presently to goe in hand to plucke them out. First consult a Physician, who may prescribe remedies according to the variety of the causes. Now here are three intensions of curing. The first is concerning diet; the other for the evacuation of the defluxion or antecedent cause; the third for the application of proper remedies for the asswaging of paine. The two former scopes, to wit, of diet, and diverting the defluxion by purging, phlebotomie, application of cupping glasses to the necke and shoulders, and scarification, doe absolutely belong to the Physitian. Now for proper and topicke medicines they shall be chosen contrary to the cause. Wherefore in a hot cause, it is good washing the mouth with the juice of Pomgranats, plantaine water, a little vinegar wherein roses, *balauſtia* and *sumach* have beene boyled. But such things as shall be applyed for the mitigating of the paine of the teeth, ought to bee things of very subtle parts, for that the teeth are parts of dense consistence. Therefore the ancients have alwaies mixed vinegar in such kind of remedies. *Rx. rosar. rub. sumach. hordei, an. m. ꝑ. seminis hyoscyami conuassati ʒii. santalorum an. ʒi. lactuca summitatum rubi, folani, plantaginis, an. m. ꝑ. bulliant omnia in aqua lib. iiii. & pauco aceto ad hordei crepaturam.* Wash the mouth with such a decoction being warme. You may also make Trochilces for the same purpose after this manner. *Rx. sem. hyoscyami, sandaracha, coriandri, opii an. ʒʒ. terantur & cum aceto incorporentur, formenturque trochisci apponendi dentibus dolentibus.* Or else, *Rx. seminis portulacæ, hyoscyami, coriandri, lentium, corticis santali citrini, rosar. rub. pyrethri, camphora, an. ʒʒ.* Let them all bee beaten together with strong vinegar, and made into trochilces, with which being dissolved in rose water, let the gums and whole mouth bee washed when need requireth. But if the paine bee not asswaged with these, you shall come to narcoticks, which may stupefie the nerve; as, *Rx. seminis hyoscyami albi, opii, camphora, papaveris albi, an. quantum sufficit, coquantur cum sapa, et denti applicentur.* Besides, you must also put this following medicine into the eare of the pained side. *Rx. opii & castorei, an. ʒi. miscantur cum oleo rosato:* It hath sometimes availed in swolne and distended gums, being first lightly scarified, to have applied leaches, for the evacuation of the conjunct matter, as also to have opened the veines under the tongue, or these which are behind the eares. For I remember that I, by these three kindes of remedies, asswaged great paines

paines of the teeth. Yet there bee some who in this affect open not these veines which are behind the eares, but those which are conspicuous in the hole of the eare in the upper part thereof.

Paine of the teeth arising from a cold cause and defluxion, may be helped by these remedies; boyle rosemary, sage, and pellitory of Spaine in wine and vinegar, and adde thereto a little *aqua vite*, in this liquor dissolve a little treacle, and wash your teeth therewith. Others mingle Gum *ammaniacum* dissolved in *aqua vite* with a little *sandaracha* and myrrhe, and lay it to the pained tooth, after *Vigoes* counsaile. *Mesne* thinks that beaten garlick carried in the right or left hand, asswages the paine, as the teeth take upon the right or left side. But I being once troubled with grievous paine in this kinde, followed the counsaile of a certaine old woman, and laid garlick roasted under the embers to my pained tooth, and the paine forthwith ceased. The same remedy used to others troubled with the like affect, had like successe. Moreover, some thinke it availeable if it bee put into the auditory passage. Others drop into the eares oile of *castoreum*, or of cloves, or some such other chymicall oile. It is good also to wash the teeth with the following decoction. *R. rad. pyrethri 3℔. mensba et ruta an. p.i. bulliant in aceto*, and with this decoction being warme, wash the teeth. Some like fumes better, & they make them of the seeds of *Colequintida* and mustard, and other like; they take the smoake by holding their mouths over a funnell. Other some boile pellitory of Spaine, ginger, cinamon, alume, common salt, nut megs, cipresse nuts, anise and mustard seeds, and *euphorbium* in oxycrate, and in the end of the decoction adde a little *aqua vite*, and receive the vapour thereof through a funnell: as also they wash their teeth with the decoction, and put cotton dipped therein into the eare, first dropping in a little thereof. Some there are which affirm that to wash the teeth with a decoction of Spurge is a very good and anodyne medicine in the tooth-ach. I have oft times asswaged intolerable paines of the teeth, by applying vesicatories under the eare, to wit, in that cavity whereas the lower jaw is articulated with the upper: for the veine, artery and sinew which are distributed to the roots of the teeth, lye thereunder. Wherefore the blisters being opened, a thinne liquor runnes out, which doth not onely cause, but also nourish or feed the disease. But if the tooth be hollowed, and that the patient will not have it puld out, there is no speedier remedy, than to put in caustick medicines, as oile of vitrioll, *aqua fortis*, and also a hot iron; for thus the nerve is burnt insunder, and loseth its sense. Yet some affirm that the milky juice that flowes from Spurge made into a paste with *Olibanum* and *amyllum*, and put into the hollowed tooth, will make it presently to fall away in peeces. When the Gums and Cheekes are swollen with a manifest tumour, then the patient begins to be somewhat better and more at ease. For so by the strength of nature, the tumor causing the paine is carried from within outwards. But of what nature soever the matter which causeth the paine be, it is convenient to intercept the course thereof with *Empl. contra rupturam*, made with pitch and mastick, and applyed to the temple on that side where the tooth aketh.

Hot fumes.

Vesicatories.

Causticks.

CHAP. XXVI.

Of other affects of the teeth.

THese teeth are also troubled with other preternaturall affects. For sometimes they shake by relaxation of the gums, or else become corrupt and rotten, or have wormes in them, or else are set on edge. For the first, the gummes are relaxed either by an externall or primitive cause, as a fall or blow: or else by an internall or antecedent, as by the defluxion of acrid or waterish humours from the braine, or through want of nourishment in old bodies. If the teeth grow loose by the meanes of the decaying gums, the disease is then incurable: but you may withstand the other causes by the use of such things as fasten the teeth, shunning on the contrary such as may loosen them. Therefore the patient must not speake too earnestly, neither chaw hard things. If they become loose by a fall or blow

Causes of loosenesse of the teeth.

A History.

blow, they must not bee taken forth, but restored and fastened to the next that remaine firme, for in time they will be confirmed in their sockets, as I tryed in *Anthony dela Rue* a taylor, who had his jaw broken with the pommell of a dagger, and three of his teeth loosened and almost shaken out of their sockets; the jaw being restored, the teeth were also put in their places, and bound to the rest with a double waxed thread; for the rest, I fed the patient with broths, gellyes, and the like, and I made astrigent gargarismes of cypresse nuts, myrtle berries, and a little alum boyld in oxycrate, and I wished him to hold it a good while in his mouth: by these means I brought it so to passe, that hee within a while after could chaw as easily upon those teeth, as upon the other. I heard it reported by a credible person, that he saw a Lady of the prime nobility, who instead of a rotten tooth she drew, made a sound tooth, drawne from one of her waiting maids at the same time, to be substituted and inserted, which tooth in proceffe of time, as it were taking roote, grew so firme, as that she could chaw upon it as well as upon any of the rest. But as I formerly said, I have this but by heare-say.

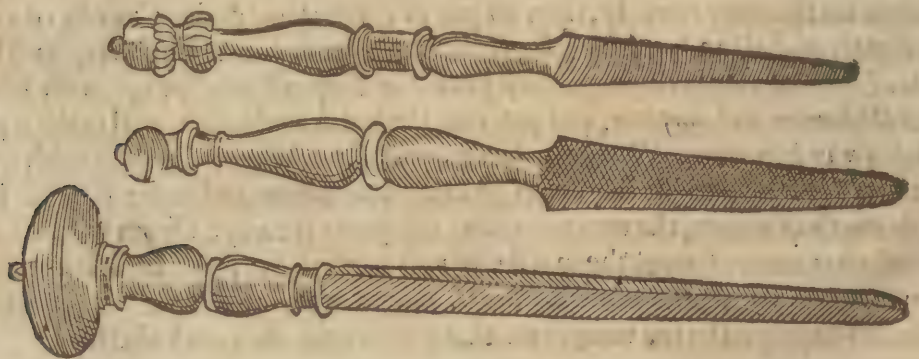
The causes of hollow teeth.

Now the teeth are corroded or eaten in by an acride and thinne humour penetrating by a plenteous and frequent defluxion even to their roots, and being there contained, it putrefies, and becomming more acride, it doth not only draw the teeth into the contagion of its putrefaction, but also perforats and corrodes them.

The cure.

The putrefaction may bee corrected, if after generall medicines, you put oile of vitrioll or *aqua fortis* into the hole of the eaten tooth: or else, if you burne the tooth it selfe to the roote with a small iron wyar being red hot: you shall thrust this hot iron through a pipe or cane made for the same purpose, lest it should harm any sound part by the touch therof, and thus the putrefaction, the cause of the arrosion, may be stayed. But if the hole bee on the one side between two teeth, then shall you file away so much of the sound tooth as that you may have sufficient liberty to thrust in your wiar without doing any harme.

The formes of Files made for filing the teeth.



Causes of worms in the teeth.

Wormes breeding by putrefaction in the roots of the teeth, shall be killed by the use of causticks, by gargles or lotions made of vinegar wherein, either pellitory of Spain hath bin steeped, or Treacle dissolved also; Aloes and Garlike are good to be used for this purpose.

Causes of setting the teeth on edge.

Setting the teeth on edge happens to them by the immoderate eating of acride or tart things, or by the continuall ascent of vapours endued with the same quality, from the orifice of the ventricle to the mouth, or by a cold defluxion, especially of acride phlegme, falling from the braine upon the teeth, or else by the too excessive use of cold or stupifing liquors. This affect is taken away, if after generall medicines and shunning those things that cherish the disease, the teeth bee often washed with *aqua vita*, or good wine wherein sage, rosemary, cloves, nutmegs and other things of the like nature have bin boyled.

CHAP. XXVII.

Of drawing of teeth.



Teeth are drawne, either for that they cause intolerable paines, which will not yeeld to medicines, or else for that they are rotten and hollowed, so that they cause the breath to smell, or else for that they infect the sound and whole teeth, and draw them into the like corruption, or because they stand out of order. Besides, when they are too deep and strongly rooted, so that they cannot be plucked out, they must oft times be broken of necessity, that so you may drop some caustick thing into their roots, which may take away the sense, and consequently the paine. The hand must be used with much moderation in the drawing out of a tooth; for the Jaw is sometimes dislocated by the too violent drawing out of the lower teeth. But the temples, eyes and braine are shaken with greater danger by the too rude drawing of the upper teeth. Wherefore they must first be cut about, that the gums may be loosed from them, then shake them with your fingers, and doe this untill they begin to be loose; for a tooth which is fast in, and is plucked out with one pull, oft-times breaks the jaw, and brings forth the piece together therewith, whence follow a feaver and a great fluxe of bloud not easily to be stayed (for bloud or pus flowing out in great plenty is, in *Celsus* opinion, the sign of a broken bone) & many other malignant and deadly symptoms: some have had their mouthes drawne so awry, during the rest of their lives, so that they could scarce gape. Besides, if the tooth be much eaten, the hole thereof must be filled either with Lint, or a corke, or a piece of lead well fitted thereto, lest it be broken under your *forceps*, when it is twitched more straightly to be plucked out, and the root remain, ready in a short time to cause more grievous paine. But judgement must be used, and you must take speciall care lest you take a sound tooth for a pained one; for oft times the patient cannot tell, for that the bitterness of paine by neighbourhood is equally diffused over all the jaw. Therefore for the better plucking out a tooth, observing these things which I have mentioned, the patient shall be placed in a low seat, bending back his head between the Tooth-drawers legs; then the Tooth-drawer shall deeply scarifie about the tooth, separating the gums therfrom with the instruments marked with this letter A. and then if spoiled as it were of the wall of the gums, it grow loose, it must be shaken and thrust out by forcing it with the three-pointed levatory noted with this letter B. but if it sticke in too fast, and will not stirre at all, then must the tooth be taken hold of with some of these toothed *forceps* marked with these letters C. D. E. now one, then another, as the greatnesse, figure, and site shall seeme to require. I would have a tooth-drawer expert and diligent in the use of such toothed mullets; for unlesse one know readily and cunningly how to use them, he can scarce so carry himself, but that he will force out three teeth at once, oft-times leaving that untoucht which caused the paine.

A caveat in drawing of teeth.

Lib. 7. cap. 184

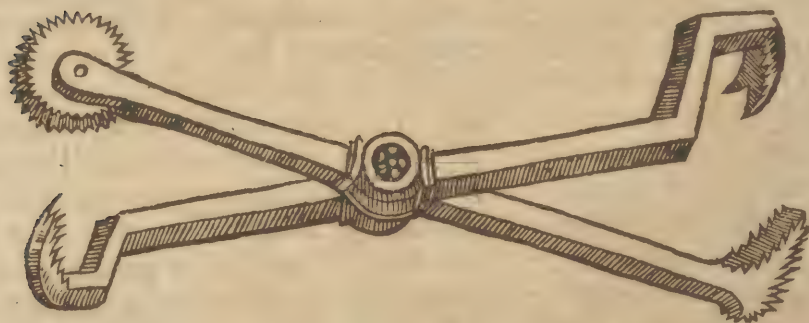
The maner of drawing teeth.

The effigies of Forcipes or mullets
for the drawing of teeth.

Instruments for scraping the teeth,
and a three-pointed levatory.



The forme of another Instrument for drawing of teeth.



What to be
done when the
tooth is pluckt
out.

After the tooth is drawn, let the blood flow freely, that so the part may be freed from pain, and the matter of the tumor discharged. Then let the tooth-drawer presse the flesh of the gums on both sides with his fingers whereas hee tooke out the tooth, that so the socket that was too much dilated and oft times torne by the violence of the plucke, may be closed again. Lastly, the mouth shall be washed with oxycrate; and if the weather bee cold, the patient shall take heed of going much in the open aire, lest it cause a new defluxion upon his teeth.

CHAP. XXVIII.

of cleansing the Teeth.

Causes of foule
or rusty teeth.



Pieces of meat in eating sometimes sticke between the teeth, and becoming corrupt by long staying there, doe also hurt the teeth themselves, and spoile the sweetnesse of the breath. Hee that would eschew this, ought presently after meate to wash his mouth with wine mixed with water, or oxycrate, and well to clense his teeth that no slimy matter adhere to them. Many folkes teeth by their owne default gather an earthy filth of a yellowish collour, which eates into them by little and little, as rust eates into iron. This rusty fithinesse, or as it were mouldiness of the teeth, doth also oft times grow by

by the omitting of their proper duty, that is, of chawing. Whence soever this slimy filth proceeds, we must get *Dentifrices* to fetch it off withall, and then the teeth must be presently rubbed with *aqua fortis* and *aqua vita* mixed together, that if there be any thing that hath escaped the *Dentifrices*, it may bee all fetched off; yet such acride washings are hurtfull to the sound teeth, for that they by little and little consume and waste the flesh of the gums.

The cure.

A caution in the use of acride things.

Dentifrices shall be made of the roote of marsh-mallows boiled in white wine & Alume; and as when the teeth are loose we must abstaine from such things as are hard to be eaten and chawed, but much more from breaking of such things as are of a bony consistence, also here we must shunne all things that by their toughnesse stick to the teeth. Many for the cleansing of the teeth, commend a powder made of scuttle bones, purple shells, pumice stone, burnt alume, and harts horne, and a little cinnamon, which is a singular remedy for the teeth howsoever affected. Many other are content with bread only toasted & beaten; but this following water is very effectuall to whiten the teeth. *Rx. sal. ammon. & gemmei, an. ʒi. alum. rock. ʒʒ. aquæ ros. quod sufficit, destillentur.* And let the teeth be cleansed with this distilled liquor.

A water to whiten the teeth.

CHAP. XXIX.

Of the impediment and contraction of the Tongue.

THe tongue is sometimes tyed and short from the nativity; as when the liberty of the tongue is restrained by the subject and neighbouring as well membranous as muscles, being either too short or too hard. Sometimes this disease happens after they are borne by some accident or preternaturall affect, as by too hard a scarre left by the healing of an ulcer under the tongue. The patient at his beginning to speake, is too slow in speaking, but presently leaving his slownesse hee becomes too quicke, so that he stammers. If the disease proceed from the astriction and shortnesse of the ligamentall membrane lying under the tongue, then the incision shall bee made broadwise, having great care that the veines and arteries which are there, be not violated, for feare lest they should cause a *hemorrhagy* not easily to be stayed: Then the mouth shall be presently washed with oxycrate, and some lint dipped in syrupe of dried roses, or honey of roses put into the midst of the incision, lest the part of the ligament, especially on the night time when the tongue is silent and at rest, should grow to the rest of the ligament. For the same purpose the finger shall be often thrust this way, and the tongue more violently rowld up and down, & thrust out of the mouth. Yet sometimes this ligament is so thick & short, and therefore holds down the tongue so close, that you cannot come to cut it with a knife or lancet without great and manifest danger of death by bleeding. Therefore in such a case a needle and thread shall bee thrust through it, and so the thread shall bee tyed straiter and straiter every day, untill by little and little this ligamentall tye of the tongue, which by its immoderate shortnesse intercepts the liberty of the motion shall be consumed and broken.

The cause of being tongue-tied.

The cure.

Another way to cut it.

CHAP. XXX.

Of superfluous Fingers, and such as sticke together.

EACH hand hath naturally five fingers onely; whatsoever is more or lesse is against nature: and if there be fewer, it is a fault not to be helped by art. But if there be more, that for the most part may be helped by art: superfluous fingers usually grow by the thumbe, or the little finger, but seldome otherwise. These are either wholly fleshy, or have bones of their kind and nailes upon them. Those which are of a bony nature doe either arise from the joints of the naturall fingers, and are joynted like them, and so are oft times

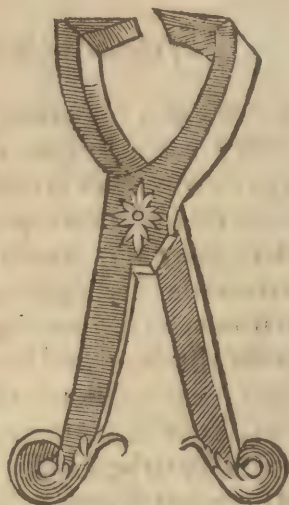
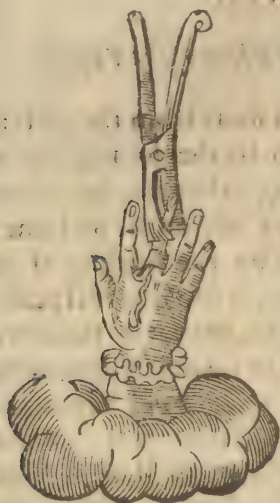
The differences.

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move-

moveable, or else from some middle space of a joint, and these have not power to stirre or move. Now they are sometimes equall in magnitude to the naturall fingers to which they grow, yet more frequently they are shorter. Those which are onely fleshy, are easily amputated and made even with a razour; but such as are also bony cannot be cut off, unlesse with the cutting mullets hereafter described, and this is a disease of the fingers in number. There is also another disease in figure, for they sometimes sticke together, and otherwhiles they are very little separated. This fault happens either from the first originall by the error of the formative faculty; or else it happens afterwards by accident, as by a wound or burne ill cured. For neighbouring fingers being ulcerated do easily grow together, unlesse they be kept asunder by a linnen ragge. And if they by chance shall grow together by a little and thin skinne and flesh, they shall forthwith be divided with a sharp razour; but if they be joyned by the interposition of a more grosse and dense substance, to wit, the nerves, tendons, and vessels, being knit together on each side, it will be best not to meddle at all with the dividing them.

Cutting Mullets neatly made for the cutting off superfluous Fingers.



The cure of
nailes running
into the flesh of
the fingers.

How to take off
the cornes of
the fingers.

Neither must wee omit, that many have their nailes run with such bony sharpenesse into the flesh of their fingers lying under them, that they cause most cruell pain; neither commonly do you availle any thing by paring them; for growing up within a while after, they presse downewards againe with the more violence. Therefore the Surgeon is often forced to cut away all the flesh whereinto the sharpenesse of the naile runs. Which I have done in many with happy success. Many have corns growing upon their fingers in divers fashions: They are taken off by paring away by little and little the callous hardnesse, and then laying a head of garlicke beaten thereon. Yet the cure is more quick and certaine which is performed by caustickes, as *aqua fortis*, or oile of vitrioll.

CHAP. XXXI.

Of the too short a Præpuce, and of such as have bin circumcised.

The cause.

The cure.



When as the Præpuce or foreskin is too short, it cannot cover the glans. This happens either by nature, to wit, by the first conformation, or afterwards by some accident, as to those whom religion and the custome of their nation bids to be circumcised. The cure is thus. The Præpuce is turned up, and then the inner membrane thereof is cut round, and great care is had, that the veine and artery which are there betweene the two membranes of

of the Præpuce, be not cut insunder. Hence it is drawa downward by extension, untill it cover the *glans*, a desiccative emplaster being first put between it and the *glans*, lest they should grow together. Then a pipe being first put into the urinary passage, the præpuce shall be there bound untill the incision be cicatrized. This cure is used to the Jewes, when having abjured their religion full of superstitions, for handsomnesse sake, they would cover the nut of their yard with a præpuce, and so recover their cut off skinnē.

CHAP. XXXII.

Of Phymosis and Paraphymosis, that is, so great a constriction of the præpuce about the Glans or Nut, that it cannot be bared or uncovered at Pleasure.



The præpuce is straitened about the *Glans* two waies; for it either covers the whole nut, & so straitly encompasses the end thereof, that it cannot be drawne upwards, and consequently the nut cannot be uncovered; or else it leaves the *Glans* bare under it, being fastened so stiffely to the roots thereof, that it cannot bee turned up, nor drawn down, or over the *Glans*. The first manner of constriction

is termed *Phymosis*, the latter *Paraphymosis*. The *Phymosis* happens either by the fault of the first conformation, or else by a scarre, through which occasion the præpuce hath growne lesser, as by the growing of warts. Now *Paraphymosis* is often occasioned by the inflammation of the yard, by impure copulation; for hence ulcers breed betweene the præpuce and *Glans*, with swelling, and so great inflammation, that the præpuce cannot bee turned backe. Whence it is that they cannot bee handled and cured as you would, and a gangrene of the part may follow, which may by the contagion bring death to all the body, unless it be hindred & prevented by amputation: but if a scar be the cause of the constriction of the præpuce, the patient being plac'd in a convenient site, let the præpuce be drawne forth and extended, and as much as may be stretched and enlarged, then let the scarre be gently cut in three or foure places on the inner side with a crooked knife, but so, that the gashes come not to the outside, and let them be an equall distance each from other. But if a fleshy excrescence or a wart shall be the occasion of this straitnesse and constriction, it shall be consumed by the same remedies, by which the warts of the wombe and yard are consumed or taken off. But when as the præpuce doth closely adhere to the *Glans* on every side, the cure is not to be hoped for, much lesse to be attempted.

The cause.

The cure.

CHAP. XXXIII.

Of those whose Glans is not rightly perforated, and of the too short or strait ligament, bridle, or Cord of the yard.



Some at their birth, by evill conformation, have not their *Glans* perforated in the middle, but have only a small hole underneath, toward the bridle & ligament of the yard, called the cord. Which is the cause, that they do not make water in a strait line, unless they turn up their yard toward their belly, neither by the same reason can they beget children, because

The cause.

through this fault of conformation, the seed is hindred from being cast directly into the wombe. The cure is wholly chirurgicall, and is thus performed. The præpuce is taken hold of and extended with the left hand, but with the right hand, the extremity thereof, with the end of the *Glans*, is cut even to that hole which is underneath. But such as have the bridle or ligament of the yard too short, so that the yard cannot stand straight, but crooked, and as it were turned downewards; in these also the generation of children is hindred, because the seed cannot be cast directly and

The cure.

plentifully into the wombe. Therefore this ligament must be cut with much dexterity, and the wound cured after the manner of other wounds, having regard to the part.

Such as are borne without a hole in their fundament are not long lived.

Children also are sometimes borne into the world with their fundaments unperforated, for a skinned preternaturally covering the part, hinders the passage forth of the excrements; those must have a passage made by art with an instrument, for so at length the excrements will come forth: yet I have found by experience, that such children are not naturally long lived, neither to live many dayes after such section.

CHAP. XXXIV.

Of the causes of the stone.

Why children are subject to the stone in the bladder.



HE stones which are in the bladder have for the most part had their first originall in the reines or kidneys, to wit, falling down from thence by the ureters into the bladder. The cause of these is twofold, that is, materiall and efficient. Grosse, tough, and viscide humours, which crudities produce by the distempers of the bowels and immoderate exercises, chiefly immediately after meat, yeeld matter for the stone; whence it is that children are more subject to this disease than those of other ages. But the efficient cause is either the immoderate heate of the kidneys, by meanes whereof the subtler part of the humors is resolved, but the grosser and more earthy subsides, and is hardened as we see bricks hardened by the sun and fire; or the more remisse heat of the bladder, sufficient to bake into a stone the faces or dregges of the urine gathered in great plenty in the capacity of the bladder. The straightnesse of the ureters and urenary passage may be accounted as an assistant cause. For by this meanes the thinner portion of the urine floweth forth, but that which is more feculent and muddy being stayed behind, groweth as by scale upon scale, by addition and collection of new matter into a stony masse. And as a weeke often-times dipped by the Chandler into melted tallow, by the copious adhesion of the tallowy substance presently becomes a large candle; thus the more grosse and viscide faces of the urine stay as it were at the barres of the gathered gravell, and by their continuall appulse are at length wrought and fashioned into a true stone.

The cause.

CHAP. XXXV.

Of the signes of the stone of the Kidneys and bladder.

Why the thigh is numme in the stone of the reines.



HE signes of the stone in the reines, are the subsiding of red or yellow sand in the urine, a certaine obscure itching at the kidneys, and the sense of a weight or heavinesse at the loynes, a sharp and pricking paine in moving or bending the body, a numnesse of the thigh of the same side, by reason of the compression caused by the stone, of the nerves disceding out of the vertebra of the loynes of the thigh. But when the stone is in the bladder, the fundament and

Signes of the stone in the bladder.

whole perinaum is pressed as it were with a heaue weight, especially if the stone be of any bignesse, a troublesome & pricking pain runs to the very end of the yarde, and there is a continuall itching of that part, with a desire to scratch it: hence also by the paine and heat there is a tension of the yarde, and a frequent and needlesse desire to make water, and sometimes their urine commeth from them drop by drop. A most grievous paine torments the patient in making water, which he is forced to shew by stamping with his feet, bending of his whole body, and the grating of his teeth. He is oft times so tormented with excesse of paine, that the Sphindler being relaxed, the right gut falleth downe, accompanied with the swelling heate and paine of the Hemorrhoid veins of that place. The cause of such torment is, the frequent striving of

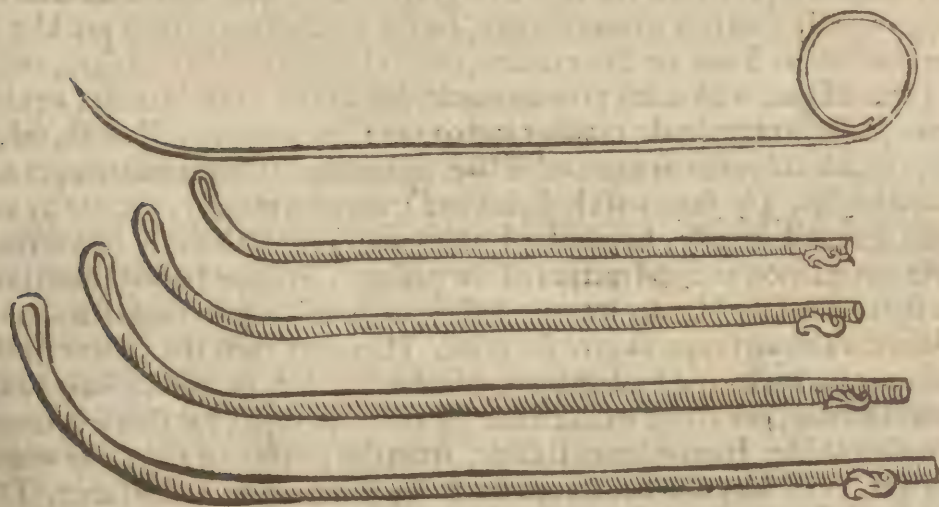
Why such as have a stone in the bladder are troubled with the falling of the fundament.

of the bladder to expell the stone wholly contrary to the nature thereof, whereto by sympathy the expulsive faculty of the guts and all their parts of the belly come as it were for supply. The sediment of the urine is grosse & viscid, and oft-times like the whites of eggs, which argueth the weaknesse of the native heate not attenuating the juices. The patient looketh of a pale and yellowish complexion and hollow eyed, by reason of the almost continuall watching which is caused by the bitterness of pain; yet may it more certainly be knowne by putting in, or searching with a *Catheter*. Which to doe, the patient shall bee wished to stand with his body somewhat stooping, leaning against somewhat with his backe, and holding his knees some foot asunder. Then the *Catheter* being bigger or lesser as the body shall require, and anointed with oyle or butter, shall bee thrust with a skilfull hand into the passage of the urine, and so into the capacity of the bladder. But if the *Catheter* cannot come to that capacity, the patient shall be placed in such a posture; then shall he be layd upon his backe on a bench, or the feet of a bed, with his knees bended, and his heeles drawn to his buttocks, after which manner he must almost lie when he is to be cut for the stone, as shall be shewen hereafter. For thus the *Catheter* is more easily thrust into the bladder, and shewes there is a stone by the meeting and obscure sound of the obvious, hard and resisting body. You must have sundry *Catheters*, that they may serve for every body bigger and lesser, and these must be crooked, smooth and hollow. When being thrust into the urenary passage (which before unawares I omitted) they come to the necke of the bladder, they must not be thrust streight into the bladder, but taking hold of the yard with the left hand, they must bee gently thrust with the right directly into the bladder, especially in men, by reason of the length and crookednesse of the way, which trends in the forme of this letter S. It is not so in women by reason of the shortnesse and straitnesse of the necke of the bladder. It is fit your *Catheters* bee hollow or fistulous in manner of a pipe, that they may receive a silver wiar or string, that may hinder the grosse and viscid humour, clotted blood, or the like, from stopping the further end of the *Catheter*, through which the suppressed urine ought to passe & be made. But now as soon as we perceive that the *Catheter* is come into the capacity of the bladder, the wiar must be drawn forth, that so the urine may the freelier flow out by the hollownesse of the *Catheter*. You may perceive the shapes of these instruments by this following figure.

How to search
for the stone in
the bladder
with a *Catheter*.

The figure of
the necke of the
bladder is
different in men
and women.

The figure of *Catheters*, and of a silver string or wiar.



CHAP. XXXVI.

Prognostickes in the stone.

How death
may ensue by
the suppression
of the urine.

Why stones of
the kidneys
have sundry
shapes.

Why men are
more subject to
the stone
than women.

When the stone is cast forth of the kidney (whereas it bred by little and little) and is so driven into one of the ureters, that it wholly stop it, yet thereupon there followeth no suppression of the urine; for seeing nature hath made divers parts of our body double, all the urine floweth into the other ureter. But if they shall bee both stopped with stones, there is no doubt but the urine will bee wholly suppress, and death ensue by the suffocation and extinction of the native heat, by the urine flowing back by the rivellits of the veines over all the whole body. Such as have a small stone cast forth of their reines into the cavity of the ureters, these, untill this stone be fallen into the bladder, have cruell paine with gripings, with often desire to go to stoole and make water, but oft-times do neither. For such oft-times have their bellies distended with flatulencies; an argument hereof is their continuall belching, or breaking of wind. But by sneezing & coughing, or any other concussion of the whole body, a pricking paine is forthwith felt, whereas the stone stops, especially if it be either rough, or have sharpe points like hornes. This paine is communicated to the hip and thigh by sympathie, and some have the stones drawne up as it were with great violence. To these may bee added the Colicke, cholericke vomiting, and almost a generall sweat. The stone in the kidneys is most commonly bred in such as are ancient, by reason of the weaknesse of the expulsive faculty. But the stone in the bladder happeneth to such as are more young, because the native heat is more vigorous in such, and strong and inordinate motions increase the strength of the expulsive facultie. When the stone is in the bladder, and the urine appeareth bloody, it is the signe of a small, as also a prickly and rough stone, for thus it more easily entrencheth into the neck of the bladder, and exulcerateth it being fleshy, whence the blood commeth away with the urine, and most cruell paine as of needles thrust into the flesh, especially after labour and much exercise: on the contrary, a larger and more smooth stone will not cause such tormenting paine, and it causeth a milkie water. The shapes of stones bred in the kidneys are various, according to the variety of the strainers through which they passe whilst they are bred. Verily I have seen stones which represented the figure of grayhounds, hogs and other creatures, and things wholly contrary to mans nature, by the production of their prickles and as it were branches. Some are foure square, others longish and like a finger, other some of a round figure with many protuberancies like a pine-apple kernell; neither is the variety lesse in magnitude, number and colour: for some are yellowish, others whitish, red, ash-coloured or some other like, according to the various temper of the affected bodies. The stones of cholerick and leane men usually concrete by preternaturall heat and drinesse; but those of phlegmaticke or fat bodies, of a certaine as it were congelation and obstruction of the passages. A stone falling sometimes from the bottome of the bladder into the passage of the urine quite stops it up, and thence followeth a totall suppression of the urine. Therefore then the patient shall be placed upon his backe and his legs being lifted up on high, he shall be shaken and tossed up and downe, just as one would shake up a sacke to fill it; for thus it is forced back into the bladder from whence it came, from the passage of the urine whereinto it was got; yet it may also bee forced backe by thrusting in a Cathæter. The paine which afflicteth such as have the stone is some whiles continuall, yet more frequently it commeth by fits and returns, sometimes monethly, other whiles yearly. Such as have the stone in the kidneys make for the most part waterish urine. Women are not so subject to the stone as men, for they have the neck of their bladder more short and broad, as also more straight; wherefore the matter of the stone by reason of the shortnesse of the passage is evacuated in gravell, before it can be gathered and grow into a stone of a just magnitude; yet stones breed in some women and those equally as big as in men, and therefore they are to be cured by section and the like remedies.

When

When the stone exceedeth the bignesse of an egge, it can scarce be taken away without the tearing of the bladder, whence happeneth an involuntary shedding of the water, curable by no art, because the bladder, seeing it is nervous and without bloud, being once torne admitteth no consolidation, adde hereto that inflammation and a gangrene often following the rending of the bladder bring inevitable death. The patient runs the same hazzard, if a long stone be pulled out sidewise with your instrument, or if it be inclosed in a membrain (which kind of stone can scarce be found with a Cathæter) and so bee fastened to the bladder, or otherwise if the stone it selfe bee fastened into the substance of the bladder, or lastly if by any chance the Surgeon being about to plucke out the stone shall hurt the body of the bladder with his instruments. Yet stones of an indifferent bigness are more safely extracted out of the bladder than those which are lesse, and the patient more frequently and happily recovereth. For they doe not scape from the instrument, and the patient being used a long while to endure pain, as that which hath been a long time a growing, doth more easily and constantly away with the inflammation, paine and other symptomes, which happen after cutting, yea in cutting. Having thus spoken of the causes, signs, places, symptomes and prognosticks, we must come to the cure, beginning with that part which is termed *Prophylactice*, that is, the preventing part.

What stones cannot be taken out of the bladder without killing the patient.

CHAP. XXXVII.

What cure is to be used when we feare the stone.

Let must first bee appointed, which by the convenient use of the fixe things not naturall (as they terme them) may heape up small store of grosse, tough and viscide humours in our bodies. Therefore cold and cloudy aire is to be shunned. They must abstaine from fish, beefe, porke, water-foule, pulse, cheefe, milke meates, fried and hard egges, rice, cakes and all pastry, unleavened bread, and lastly all manner of obstructing meats. Also garlike, onions, leeks, mustard, spices, & lastly all things which overheat the bloud and humors must be shunned, especially if you feare that the stone is concrete by the heat of the reines. Standing and muddy waters, thicke and troybled wines, beere, and such kind of liquors must be eschewed. Society in meats and drinks is to be shunned, as that which breeds crudities. Also long watching and continuall labour because they inflame the bloud, cause crudities, and preternaturall heat must carefully be eschewed, as also all more vehement passions of the minde. If the body be plethoricke, then it must bee evacuated by phlebotomie, purging and vomiting, which is accounted for a singular remedy for the prevention of this disease. For the performance of all which things a Physician shall be consulted. But because Physicians are not in every place and alwaies at hand, I have thought good to set downe these following medicines; yet we must first remember this counsell of *Galen*; The use of diureticks, and strong purging medicines is hurtfull, as often as there is inflammation in the reines and bladder, for so the conflux of the humors to the affected parts is the greater, whence the inflammation and paine are increased.

What diet such must use as feare the stone.

Lib. 13. method.

Wherefore first using relaxing medicines, as fixe drams of *Cassia* newly drawne, with Div. of *Rubarbe* in powder mixed therewith, then lenitive and refrigerating medicines shall bee inwardly and outwardly used, such as is this following syrupe.

Rx. summitatum malv. bis mal. & violar. an. m. ss. rad. alth. ʒi. glycyrr. ʒss. 4. sem. frigid. major. an. ʒi. fiat decoctio. Rx. prædict. decoctionis ʒss. in colatura dissolve sacch. albiss. ʒii. mellis albi ʒss. fiat syrupus secund. artem; let the patient use this often. This following apozeme is also very effectual for the same purpose. *Rx. rad. aspar. gramin. polyp. quercini, passul. mund. an. ʒss. betonic. herniar. agrimon. omnium capill. & pimpinell. an. m. ss. 4. sem. frigid. major. & sem. fenic. an. ʒi. folior. sen. ʒvi. fiat decoct. ad ʒss. in colatura dissolve syrupi de Althaa & de herniar. an. ʒss.* Make a cleare apozeme and let it be aromatized with a little cinamon, for two doses; let him take the first dosis in the morning two houres before meat, and the other at foure of the clock in the afternoone. More-

A lenitive and lubricating syrupe.

A diuretick Apozeme.

over

A diuretick and
lenitive broth.

A diuretick
powder.

The lye made
of the ashes of
beane stalkes a
diuretick.
Anodine gli-
sters in the
stone.

Remedies a-
gainst the stone
of the kidneys
comming from
a cold cause.

Carminative
glisters.

over this following broth hath an excellent and certain power to prevent the stone. *Rx. hordei integr. p.i. radic. petroselini, acetos. fœnicul. cichor. brusci an. ʒi. 4. sem. frigidorum conuassatorum. an. ʒʒ. fol. acetos. portul. lactuca, summitatum malua, & violar. an. m.ʒ. bulliant in aqua fluviali cum gallo gallinaceo & crure vitulino*; let the broth bee kept, and let the Patient take thereof fixe ounces for foure daies; in the morning two houres before meat, with an ounce of the juice of Citrons gently warmed with the same broth at the time of the taking thereof; for thus, much urine will be made in a short while after, full of a sandy sediment and a grosse viscidum humour. Whereby you may certainly gather that this kind of broth is very effectually to cleanse the passages of the urine, neither in the interim, doth it any harme to the stomacke and other parts by which it passeth: so that it may be rightly esteemed a medicinall nourishment. You may also profitably use this following powder. *Rx. nucleorum mespilorum ʒi. pul. elect. diamarg. frig. ʒii. 4. sem. frigid. majorum mund. glycyrrhiza rasa, ʒi. sem. saxifrag. ʒii. sem. milii solis, genist. pimpinel. brusci & asparag. an. ʒi. sem. althea, ʒʒ. sacch. albiss. ʒvi. fiat pulvis*; let him take a spoon full in the morning three houres before meat. Also some thinke that lye made of the stalkes and huskes of beanes is a good preservative against this disease. Besides the use of this following glyster hath done good to many. *Rx. fol. lactuc. scariol. portul. an. m. i. flor. viol. & nenuph. an. p. i. fiat decoctio. ad lib. i. in colatura dissolve cassia fistula ʒi. mellis viol. & sacch. rub. an. ʒʒ. olei viol. ʒiiii. fiat clyster*. This which followeth is the fitter to assuage the paine. *Rx. flo. cham. melil. summitat. aneth. berul. an. p. ii. fiat decoctio in aceto vaccino*; in colatura dissolve cassia fistul. & sacchar. alb. an. ʒi. vitellos ororum num. ii. olei anethini, & chamem. an ʒii. fiat clyster. In the interim let the kidneys bee annointed on the outside with unguentum rosatum, refrigerans Galen. and populeon used severally, or mixed together, laying thereupon a double linnen cloth dipped in oxycrate. But if the concretion of the stone be of a cold cause, the remedies must bee varied, as follows; *Rx. terebinth. venet. ʒi. cort. citri ʒii. aqua coct. ʒii. fiat potio*. Or else, *Rx. cassia recent. extract. ʒvi. benedict. lax. ʒiii. aq. fœnicul. ʒii. aq. asparag. ʒi. fiat potio*; let him take it three houres before dinner: this following apozeme is also good. *Rx. rad. cyper. bardan. & gram. an ʒiii. bismal. cum toro, beton. an. m. ʒ. sem. milii solis, bardan. urtic. an ʒii. sem. melon. glycyrrhiza. ras. an. ʒʒ. ficus num. 4. fiat decoct. ad quart. iii. in expressa colatura, dissolve syrup. de capban. & oxymilitis scillitici an. ʒi. ʒ. sacchar. albis. ʒiii. fiat apozema pro tribus dosibus, clarificetur & aromatiz. cum ʒi. cinam. & ʒʒ. sant. citrin.* let him take foure ounces three houres before dinner. Or else, *Rx. rad. petrosel. fœnicul. an. ʒi. saxifrag. pimp. gram. & bardan. an. m. ʒ. quatuor seminum frig. major. mundat. & milii. solis an. ʒii. fiat decoctio, cape de colatura ʒʒ. ʒ. in qua dissolve sacch. rub. & syrup. capill. ven. an. ʒi. ʒ.* Let it be taken at three doses, two houres before meat. The following powder is very effectually to dissolve the matter of the stone. *Rx. sem. petrosel. & rad. ejusdem mundat. an ʒʒ. sem. cardui, quem colcitrampam vocant, ʒi.* let them be dried in an oven or stone with a gentle fire, afterwards let them be beaten severally and make a powder, whereof let the patient take ʒi. ʒ. or two scruples with white wine, or chicken broth fasting in the morning by the space of three daies. Or, *Rx. coriand. præp. ʒiv. anis. marathri, ganor. alkakengi, milii solis, an ʒii. ʒinʒib. & cinam. an. ʒii. turbith. electi ʒi. cari ʒii. galang. nucis moschat. & lapid. judiaci an. ʒi. fol. senna mund. ad duplum omnium, diacrydii ʒii. ʒ. misce, fiat pulvis*: the dosis is about ʒi. with white wine three houres before meate. Against the flatulencies which much distend the guts in this kind of disease, glisters shall be thus made; *Rx. malv. bismal. pariet. origani, calament. flo. chamem. sumitat. anethi, an. m. ʒ. anisi, carvi. cumini fœnic. an. ʒʒ. baccar. laur. ʒiii. semin. rutæ ʒii. fiat decoctio, in colatura, dissolve bened. lax. vel diaphanic. ʒʒ. confect. bac. lauri ʒiii. sacchar. rub. ʒi. olei aneth. chamem. & rutar. an. ʒi. fiat clyster*. Or, *Rx. olei nucum & vini mal. an. ʒʒ. aq. vita. ʒʒ. fiat clyster*; let it be kept long, that so it may have the more power to dissolve the winde.

CHAP. XXXVIII.

What is to be done, when the stone falleth out of the Kidney into the Ureter.



Of-times it falleth out that the reines using their expulsive faculty force downe the stone (whose concretion and generation the Physicians by the formerly prescribed meanes could not hinder) from themselves into the ureters; but it stayeth there either by reason of the straightnesse of the place, or the debility of the expulsive faculty.

Signes of the stone stopping in the ureter.

Therefore then cruell paine tormenteth the patient in that place whereas the stone sticketh, which also by consent may be communicated to the hippe, bladder, testicles and yard, with a continuall desire to make water and goe to stoole. In this case it behooveth the Physician that he supply the defect of nature, and assist the weakendeavours.

Therefore let the patient if he be able mount upon a trotting horse, and ride upon him the space of some two miles, or if hee can have no opportunity to doe so, then let him run up and downe a paire of staires untill he be weary, and even sweat again; for the stone by this exercise is oft-times shaken into the bladder; then presently shall be given or taken by the mouth such things as have a lenitive and relaxing facultie, as oyle of sweet almonds newly drawne and that without fire, and mixed with the water of pellitorie of the wall and white wine. Let frictions of the whole body be made from above downwards with hot clothes; let Ventoses with a great flame be applyed one while to the loynes, and another while to the bottome of the belly, a little below the grieved place; and unlesse the patient vomit of his owne accord, or by the bitterness of his paine, let vomiting bee procured with a draught of water and oile luke warme; for vomiting hath much force to drive downe the stone, by reason of the compression of the parts, which is caused by such an endeavour: lastly, if the stone descend not by the power of these remedies, then the patient must bee put into a *Semicupium*, that is, a Halfe-bath, made of the following decoction.

Remedies to force down the stone sticking in the ureter.

Re. malva, bis mal. cum toto an. m. ii. beton. nasturt. saxifrag. berul. parietar. violar. an. m. iii. semin. melonum, milii solis, alkekengi an. ʒvi. cicer. rub. lb. i. rad. appii, gram. feniculi, & eryngii, an. ʒiiii. in sufficienti quantitate aqua pro incessu; coquantur ista omnia inclusa sacco; herein let the patient sit up to the navell: neither is it fit that the patient tarry longer in such a bath than is requisite, for the spirits are dissipated, and the powers resolved by too long stay therein. But on the contrary, if the patient remaine as long as is sufficient in these rightly made, the paine is mitigated, the extended parts relaxed, and the passages of urine opened and dilated, and thus the stone descendeth into the bladder. But if it be not moved by this meanes any thing at all out of the place, and that the same totall suppression of urine do as yet remaine, neither before the patient entred into the bath the putting of a *Catheter* into the bladder did any thing availe, yet notwithstanding he shall try the same againe after the patient is come out of the bath, that hee may bee thoroughly satisfied whether peradventure there may bee any other thing in these first passages of the yard and neck of the bladder, which may with-hold the urine; for the *Catheter* will enter farre more easily, the parts being relaxed by the warmenesse of the bath: then inject some oyle of sweet almonds with a syringe into the *Urethra* or passage of the yarde; whilst all these things are in doing, let not the patient come into the cold aire. But here I have thought good to describe a chaire for a bath, wherein the patient may fitly sit.

A decoction for a bath.

The figure of a chaire for a Semicupium.



- A. Sheweth the whole frame of the Chaire.
 B. The hole wherein the patient must sit.
 C. The Cisterne that holds the water.
 D. A Cocke to empty the water when it groweth cold.
 E. A Funnell whereby to poure in warme water.

There may also be another decoction made for the bath, as thus: *Rx. rad. raph. alth. an. ℥. ii. rad. rusc. petrosel. & asparag. an. ℥. i. cumin. fœnicul. ameos an. ʒ. iiii. sem. lini, fanug. an. ʒ. vi. fol. marub. parietar. florum chamem. melil. anethi, an. m. ii. bulliant omnia secundum artem in aqua sufficienti, & vini albi odoriferi exigua quantitate ad consumptionem tertia partis pro Semicupio.* Also the same decoction may be used for glisters, adding thereto two yolkes of egges, and foure ounces of oyle of lillies, with ʒi. of oyle of Juniper, which hath a certaine force to assuage the paine of the stone and colick. But a farre lesse quantity of the decoction in a glister must be used in these diseases, than usually is appointed in other diseases; otherwise there will be danger lest the guts being distended should more presse upon the kidneys and ureters, troubled in some sort with inflammation, and so increase the paine and other symptoms. This following cataplasme shall be profitably applyed to the grieved place, to wit, the loynes or flankes and bottome of the belly, for it is very powerfull to assuage paine, and help forwards the falling downe of the stone. *Rx. rad. alth. & raphani, an. ʒ. iiii. pariet. fœnic. senecionis, nasturt. berul. an. m. i. herniaria m. B. omnibus in aqua sufficienti decoctis, & deinde contritis, adde olei aneth. chamem. & pingued. cuniculi, an. ʒ. ii. farina. cicer. quantum sufficit, fiat cataplasma ad usum prædictum.* After by these means the stone forced out of the ureter is fallen into the bladder, the paine presently (if there be but one stone, for sometimes more with much gravell do againe fall into the ureter) is mitigated, and then the patient is troubled with an itching and pricking at the end of his yard and fundament. Therefore then unlesse he bee very weake, it is fit that he ride and walk a foote, and take ʒiv. of *species Lithontribon* in foure doses with white wine, or the broth of red Cicers three houres before dinner and supper. Besides, let him plentifully drink good wine, and after he hath drunke, let him hold in his

An Anodine
Cataplasme.

Signes of the
stone fallen out
of the ureter in-
to the bladder.

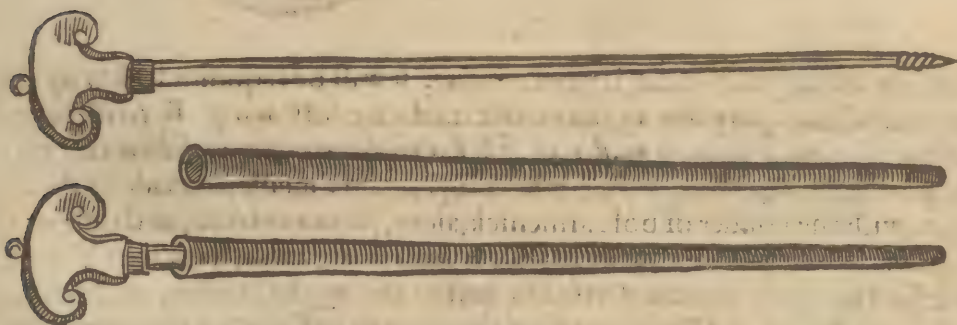
his urine as long as he can; that so it being gathered in greater plenty, it may presently thrust the stone out of the bladder with the more force: for which purpose you may also inject the following liquor into the bladder. *Rx. syropi capill. ven. ʒi. aqua alkekengi ʒiii. olei scorpionum. ʒʒ.* Let it bee injected into the bladder with a syringe.

CHAP. XXXIX.

*What must be done the stone being fallen into the necke of the bladder,
or passage of the yard.*

AFTER the stone is fallen out of the capacity of the bladder, and stops in the necke thereof, or passage of the yard, the Surgeon shall have a speciall care that he do not force or thrust backe the stone from whence it came, but rather that he press it gently with his fingers to the end of the yard, the passage being first made slippery by injecting some oyle of sweet almonds. But if it stop in the end of the *Glans*, it must bee plucked out with some crooked instrument; to which if it will not yeeld, a Gimblet with a pipe or case thereto, shall be put into the passage of the yard, and so it shall be gotten out, or else broken to pieces by the turning or twining about of the Gimblet, which I remember I have divers times attempted and done; for such Gimblets are made with sharpe scrowes, like ordinary Gimblets.

*The delineation of a Gimblet made to breake the stones in the passage of the
yard, together with its pipe, or case.*



The effigies of another lesser Gimblet.



Verily what Gimblets soever are made for this businesse, their body nor point must bee no thicker than a small probe; lest whilst they are forced or thrust into the *urethra*, or urinary passage, they might hurt the bodies next unto them by their violent entrance.

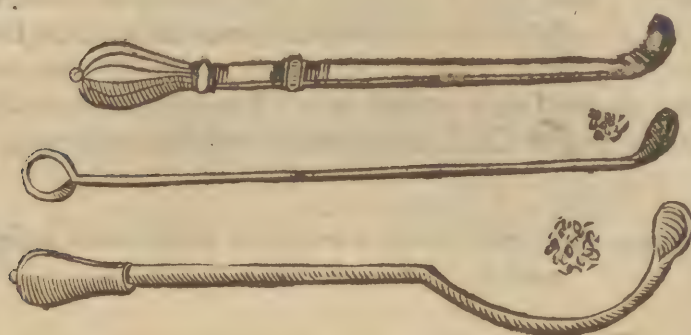
CHAP. XL.

*What course must be taken, if the stone sticking in the Urethra or urinary passage,
cannot be gotten out by the fore-mentioned arts.*

BUT if the stone be more thicke, hard, rough and remote from the end of the yard, than that it may be gotten out by the meanes formerly mentioned in the precedent chapter, and if that the urine be wholly suppress When the yard may be safely cut, therewith; then must you cut the yard upon the side with a streight wound: for you must not make incision on the upper part for feare of a fluxe of blood, for a large veine and artery lyeth thereunder; nor in the lower part, for

for so it would scarce ever heale againe, for that it is a bloodlesse part, and besides, the continuall and acride falling of the urine would hinder the agglutination: wherefore the incision must be made on the side, on that part whereas the stone most resists and swells out. For that part is the more fleshie; yet first the end of the skin of the prepuce must be much drawn up so to cover the *Glans*, which being done, the *Urethra* shall be tyed with a threed a little above the stone, that so the stone may be stayed there, and may not fall back againe. Therefore then, incision being made, the stone must be taken forth, and the skin which was drawne more violently to cover the *Glans* is to be let goe backe againe; for so it will come to passe that a whole part of the skin may cover the curyard, and so it may be the more speedily united and the urine may naturally flow out. I have by this meanes oft-times taken forth the stone with the instruments here delineated.

Instruments fit to take the stone forth of the opened Urethra, or urinary passage of the yard.



An agglutinative medicine.

How to hasten the agglutination.

Then for the agglutination, if need require, it will be requisite to sew up the lips of the wound, and apply this agglutinative medicine following. *Rx. tereb. venet. 3iiii. gum. elemi, 3i. sang. dracon. & mastice an. 3℔. fiat medicamentum ut dictum est*: then the whole yard must be covered over with a repercussive medicine made of the whites of egges, with the poudre of bole armenick, aloes, *farina volatilis*, and oyle of roses. Lastly, if need so require, a waxe candle, or leaden string annoynted with Venice turpentine shall be thrust into the *Urethra* to hasten the agglutination, and retaine the naturall smoothnesse and streightnesse of the urenary passage, lest peradventure a caruncle grow therein.

CHAP. XLI.

What manner of section is to be made when a stone is in a boyes bladder.

Why the boy must be shaken before cutting.

How to place the child before dissection.



hitherto we have shewed, by what means it is convenient to draw small stones out of the ureter, bladder and passage of the urine; now will we briefly shew the manner of taking of greater stones out of the bladder, which is performed by incision and iron instruments, and I will deliver the practice thereof first in children, then in men, and lastly in women. First therefore let the Surgeon take the boy (upon whom it is determined the worke shall be performed) under the arme holes, and so give him five or sixe shakes, that so the stone may descend the more downewards to the neck of the bladder. Then must you cause a strong man sitting upon a high seat to lay the child upon his backe with his face from himward, having his hips lying upon his knees. The child must lye somewhat high that he may breathe the freelier, & let not the nervous parts be too much stretched, but let all parts be loose and free for the drawing forth of the stone. Furthermore, it is fit that this strong man, the childs legges being bended backe, with the child, that putting his legs to his hams, that he draw them up as much as he can, & let the other be sure he keep them so; for this site of the child much condu-

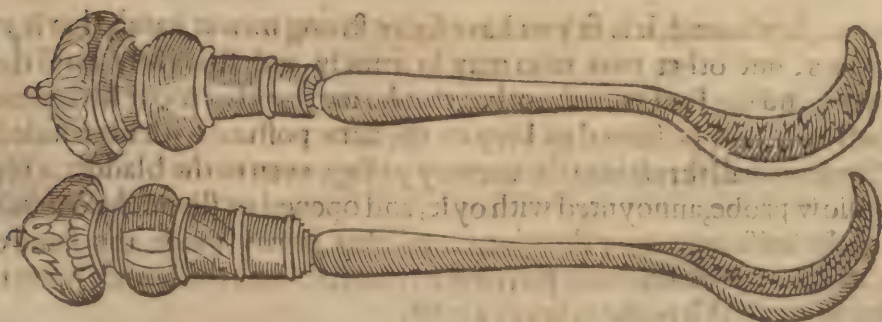
condu-

conduceth to well performing of the worke. Then let the Surgeon thrust two of the fingers of his left hand as farre into the childs fundament as hee is able; but let him with his other hand presse the lower belly, first wrapping a cloth about his hand, that so the compression may be the lesse troublesome, and lest inflammation should happen rather by this meanes than by the incision. Now the compression hath this use, to cause the stone descend out of the bottome of the bladder into the neck thereof under the *os pubis*, whither after it is arrived, it must be there kept, & as it were governed by the command of your hand, lest it should slide from that place whereto you have brought it. These things thus done, nothing now remaineth, but that the Surgeon, with a wound some two fingers breadth distant from the fundament, cut through all the flesh even to the stone on the left side of the *perineum*. But in the interim, let him beware that he hurt not the *intestinum rectum*; for it may, and usually doth happen, that whilest the stone is brought out of the bottome of the bladder to the neck thereof, this gut is doubled in: now if it bee cut with your incision knife, it commeth to passe that the excrements may sometimes come out at the wound, and the urine by the fundament, which thing hath in many hindred the agglutination and consolidation of the wound; yet in some others it hath done little harme, because in this tender age many things happen, which may seeme to exceed nature: the incision being made, the stone must bee plucked forth with the instrument here expressed.

Where to divide
the *perineum*.

Nature very
powerfull in
children.

Hookes to pull Stones forth of childrens bladders.



The stone being drawne out, a small pipe shall be put into the wound, and there kept for some space after, for reasons hereafter to bee delivered; then his knees shall bee bound together, for thus the wound will the sooner close and bee agglutinated. The residue of the cure shall be performed by reducing the generall cure of wounds, to the particular temper of the childs age, and the peculiar nature of the child in cure.

Generall rules
must be reduced
to particular
bodies.

CHAP. XLII.

How to cut men, for the taking out of the stone in the bladder.

Seing wee cannot otherwise helpe such men as have stones in their bladders, we must come to the extreme remedy, to wit, cutting. But the patient must first be purged, and if the case require, draw some bloud; yet must you not immediately after this, or the day following hasten to the work, for the patient cannot but be weakened by purging & bleeding. Also it is expedient for some daies before to foment the privies with such things as relaxe and soften, that by their yeelding, the stone may the more easily be extracted. Now the cure is thus to be performed; The patient shall be placed upon a firm table or bench with a cloth many times doubled under his buttocks, and a pillow under his loynes & back, so that he may lie halfe upright with his thighs lifted up, and his legs and heels drawn back to his buttocks. Then shall his feet be bound with a ligature of three fingers breadth cast about his ankles, and with the heads thereof being drawn upwards to his neck, and cast about

What to be
done before
dissection.

How to lay the
patient.

bout it, and so brought downwards, both his hands shall bee bound to his knees, as the following figure sheweth.

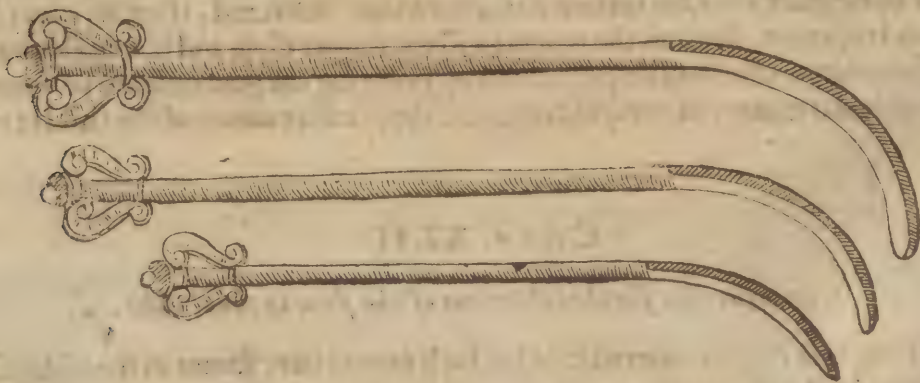
The figure of a man lying ready to be cut for the stone.



The patient thus bound, it is fit you have foure strong men at hand; that is, two to hold his armes, and other two who may so firmly and straightly hold the knee with one hand, and the foot with the other, that he may neither move his limmes, nor stirre his buttocks, but be forced to keep in the same posture with his whole body. Then the Surgeon shall thrust into the urenary passage even to the bladder, a silver or iron and hollow probe, annoynted with oyle, and opened or slit on the out side, that the point of the knife may enter thereinto, and that it may guide the hand of the workman, and keep the knife from piercing any farther into the bodies lying thereunder. The figure of this probe is here exprest.

Why the probe must be slit on the out-side.

Probes with slits in their ends.



Why the seame of the *perineum* must not be cut.

He shall gently wrest the probe, being so thrust in, towards the left side, and also he who standeth on the patients right hand, shall with his left hand gently lift up his Cods, that so in the free and open space of the left side of the *perineum*, the Surgeon may have the more liberty to make the incision upon the probe which is thrust in and turned that way. But in making this incision, the Surgeon must be carefull that he hurt not the seame of the *perineum* and fundament. For if that seame bee cut, it will not be easily consolidated, for that it is callous and bloudlesse, therefore the urine would continually drop forth this way. But if the wound be made too neare the fundament, there is danger, lest by forcible plucking forth of the stone he may break some of the hæmorrhoid veins, whence a bleeding may ensue, which is scarce to be

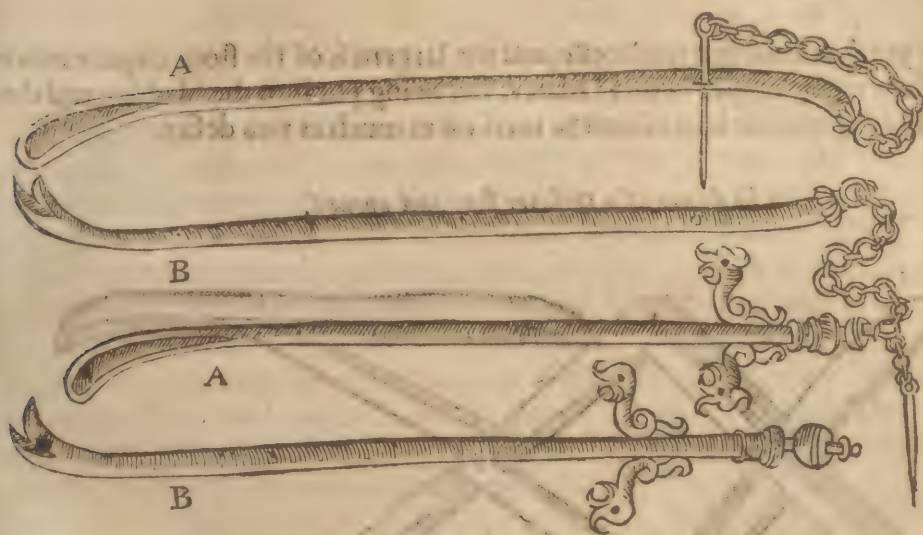
stopped

stopped by any meanes, or that hee may rend the *sphincter* muscle, or body of the bladder, so that it can never be repaired. Therefore it must be made the space of two fingers from the fundament, according to the straightnesse of the fibres, that so it may be the more easily restored afterwards. Neither must the incision thus made, exceed the bignesse of ones thumbe, for that it is afterwards enlarged by putting in the Crowes beake and the dilater, but more by the stone as it is plucked forth. But that which is cut, is neither so speedily nor easily healed up, as that which is torne. Then presently put into the wound some one of these silver instruments delineated here below, and called by the name of Guiders, for that they serve as guides to the other instruments which are to be put into the bladder; these are made with a round & prominent head, whereby it may bee put into the described cavity of the probe, and they are noted by these letters A. A. then there are others marked with the letters B. B. and called by the like name, and are to be put under the former, being made forked at the end, that so it may, as it were, embrace the end of the former.

Where to make the wound to take forth the stone.

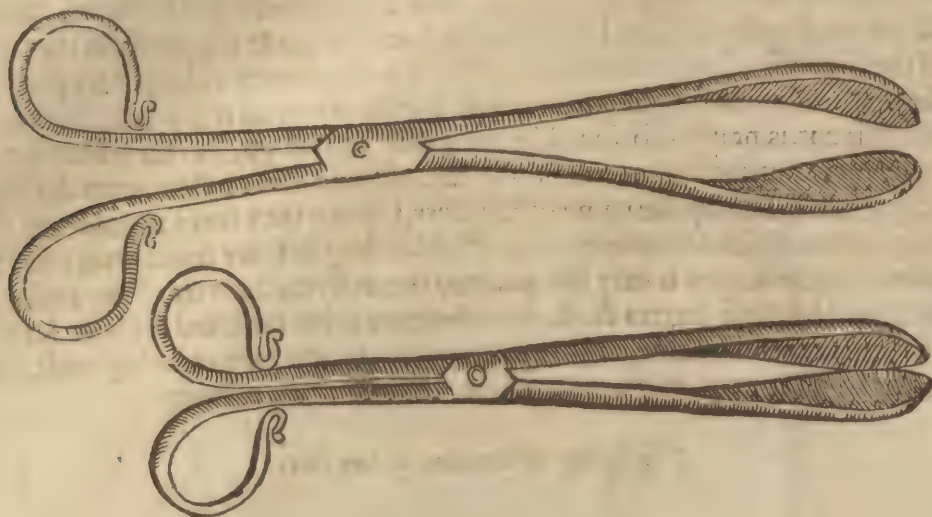
That which is torne is looner healed than that which is cut.

The figures of Guiders of two sorts.



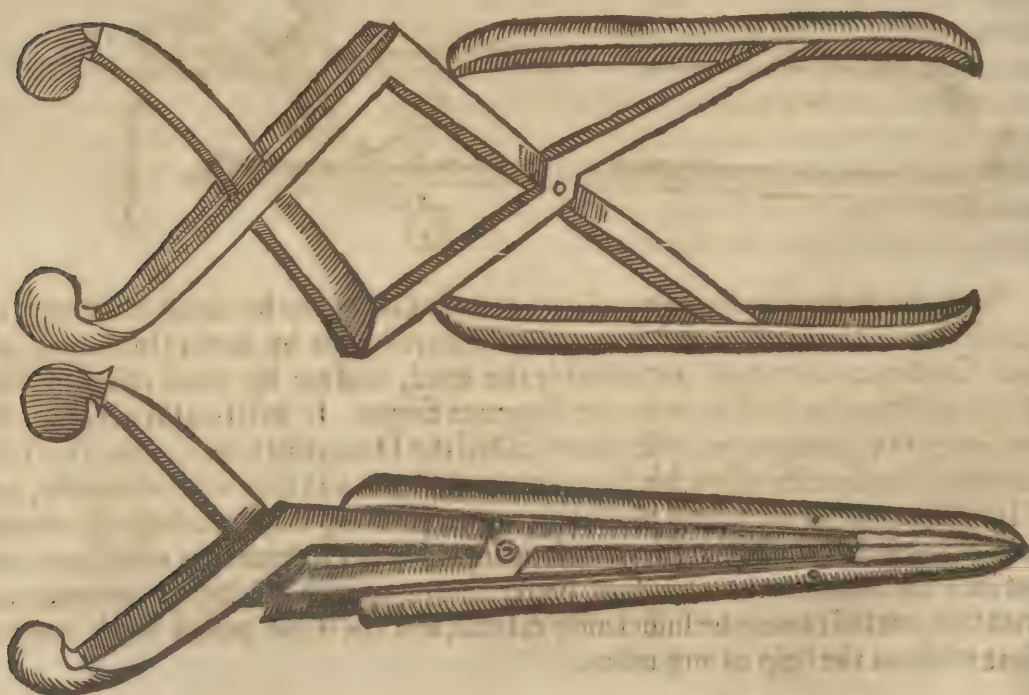
Now the probe is to be drawne forth, and the Guiders to be thrust and turned up and downe in the bladder, and at length to be stayed there by putting in the pin; yet such Guiders as want a pin are fitter for the hand, and are by some called *spathæ*. Then must they be held betwixt the Surgeons fingers. It will be also necessary for the Surgeon to put another instrument called the Ducks bill between the two Guiders into the capacity of the bladder; hee must thrust it in somewhat violently, and dilate it so thrust in with both his hands, turning it every way to enlarge the wound as much as shall be sufficient for the admitting the other instruments which are to be put into the bladder; yet it is farre better for the patient, if that the wound may with this one instrument be sufficiently dilated, and the stone pulled forth with the same without the help of any other.

The effigies of an instrument called a Ducks bill.



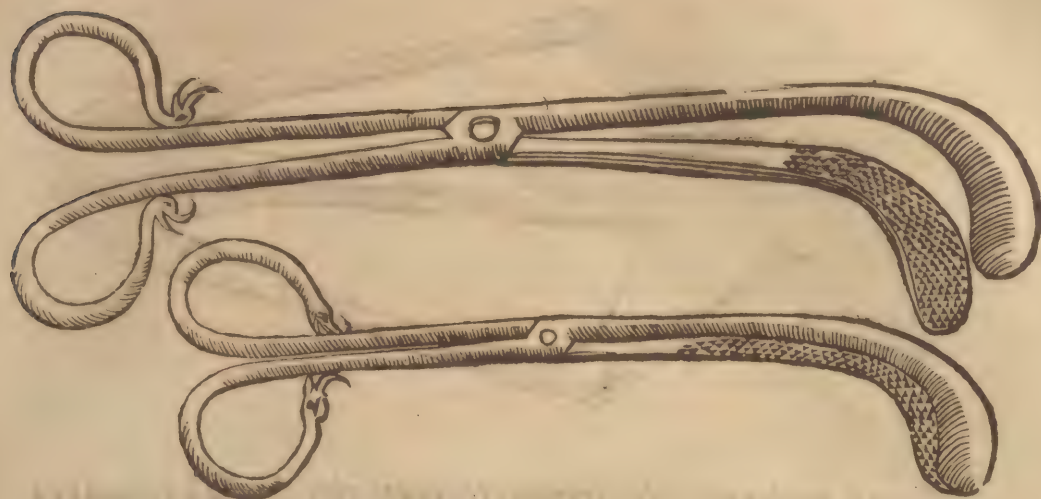
Which if you have not in a readinesse, and the largeness of the stone require more dilatation, then must you put in this Dilater, for being put into the bladder, and the handle pressed together, it will dilate the incision as much as you desire.

The figure of a Dilater shut and opened.

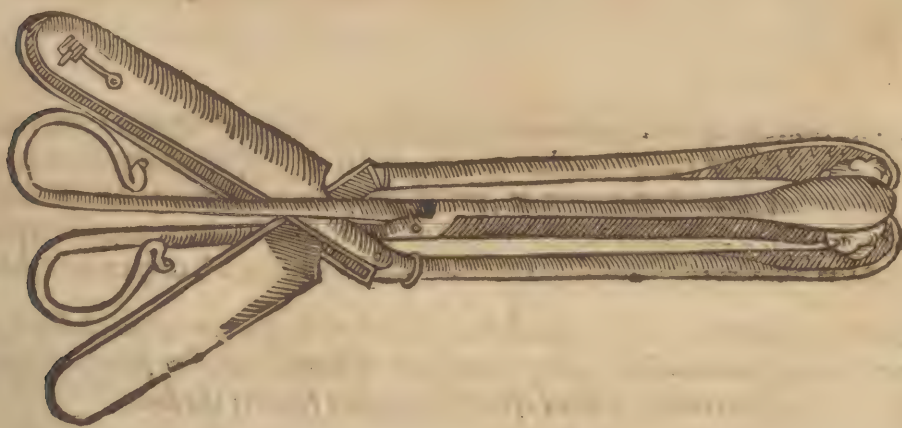


The wound by the helpe of this instrument being dilated as much as is sufficient, then put in the streight Ducks-bill before described, or the crooked here exprest.

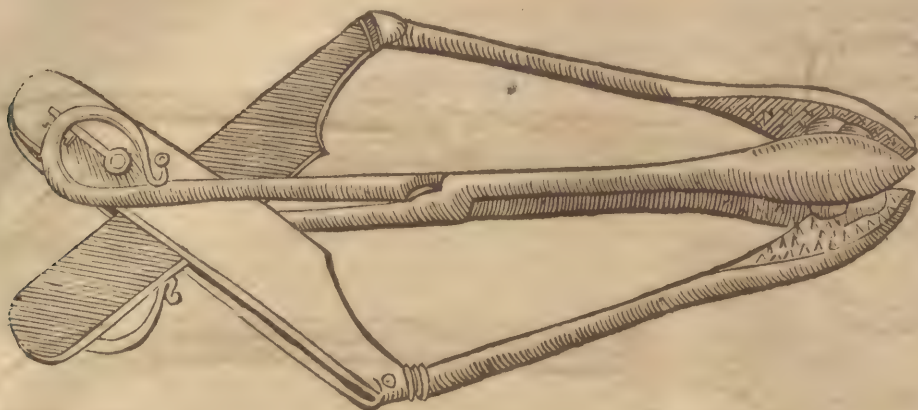
Crooked

Crooked Forcipes like a Ducks-bill.

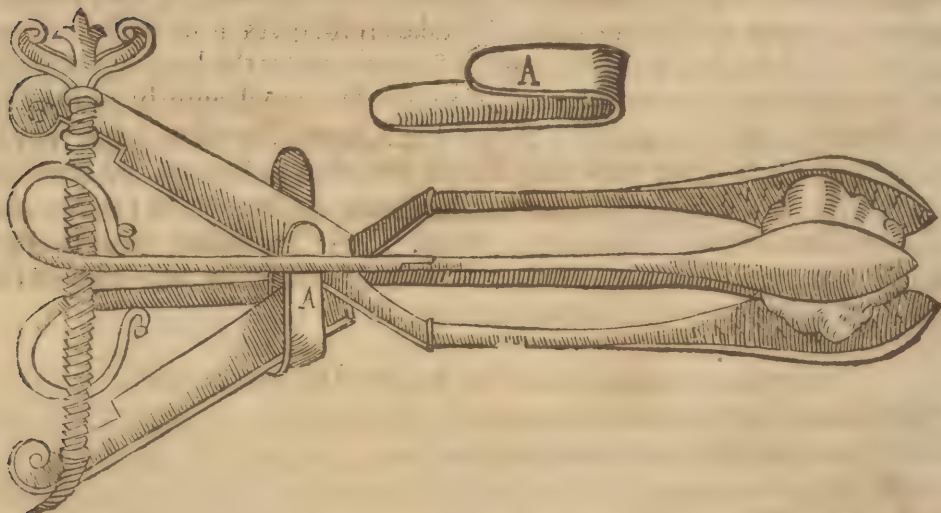
The stone may be sought & taken hold of with these instruments, and being taken hold on, the branches of the instrument shall bee tyed together, lest they should suffer that to slide away which they have once taken hold of. Neither shall the stone be suddenly plucked out, but easily shaken too & again, and at the length gently drawn forth. Yet you must beware that you doe not presse it too straightly in the *forceps*, lest you should breake it in pieces : Some, lest it should slip away, when they have once taken hold thereof, put their two fingers into the fundament, and put them above the stone that it may not fall out, nor slip backe againe, which I thinke conduceth much to the easie extraction of the stone. There are others who strengthen this comprehension by putting in on each side above and below these winged instrument, so that the stone can slip forth on no side.

Winged instruments to hold the stone with the Ducks-beake.

The figure of another.



The figure of another winged instrument, the end of whose handle is fastned by a screw, as also a bended iron plate which is marked with this letter A. for the firmer holding thereof.



A note of more
stones than one.

After the stone is by these meanes drawne forth, observe diligently whether it be worne on any side, and as it were lavigated; for that happeneth by the wearing or rubbing of one or more stones upon it; yet there is no surer way to know this, than by searching with a Catheter. The one end of the following instrument may supply the want of a Catheter or probe, and the other may serve for a scoop or Cleanser.

A cleanser or scoop whereby you may search whether there be any more stones behind, as also cleanse or purge the bladder from gravell, clots of bloud, and other such bodies, as use to remaine behind after the drawing forth of the stone.

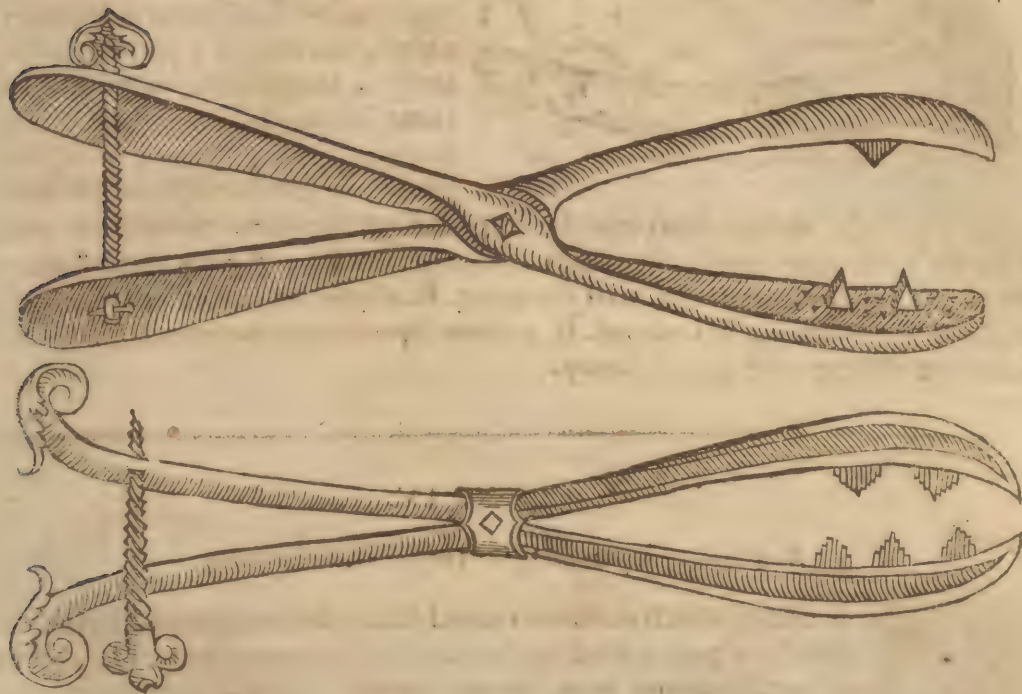


For if other stones remaine behinde, they shall bee drawne forth as the former, which being done, the end of the instrument, which is crooked and hollowed like a scoop or spoone, shall bee thrust by the wound into the bladder, and therewith you shall gather together and take out what gravell soever, clotted bloud, and the like refuse as shall be there, for that they may yeeld matter for another stone. But if you find that the stone which is in the bladder be too great, so that it may not be plucked forth without great and fearfull rending of the bladder, it will be better to take hold thereof with this Crowes bill and so break it to peeces.

How to cleanse
the bladder.

How to break a
stone that can-
not be taken
out whole and
at once.

*The effigies of a toothed Crowes-bill made neatly to breake greater stones,
with a screw to force it together.*



This Crowes bill hath onely three teeth, and those sharpe ones on the inside, of which two are placed above, and one below, which is the middle-most, so that it falleth between the two upper. When the stone is broken, all the peeces thereof must be taken forth, and we must have a speciall care, lest any piece thereof lye hid; for that in time, increased by the accessse of a rough and viscous matter, or conjoynd with other fragments by the interposition of the like matter as glew, may rise to a stone of a large bignesse.

CHAP. XLIII.

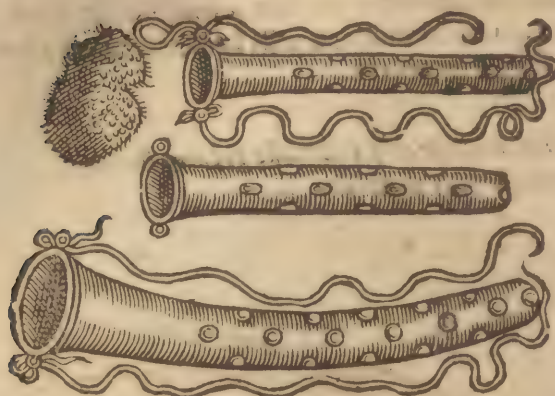
What cure must be used to the wound, when the stone is taken forth.

THE stone being drawne out, if the greatnesse of the wound so require, it shall have one or two stiches with a needle and threed, leaving onely so much space as shall be sufficient to put in a pipe for the use we shall hereafter shew; your threed must be of crimson silke waxed, and let it not be too small, lest it by binding should cut asunder the fleshy lips of the wound, or rot in a short time, either by the moysture of the urine, or matter flowing from the ulcer. Therefore you shall take up much flesh with the skin in sewing it, lest the lips of the wound being torne, your labour prove in vaine, and so you are forced to trouble the patient with making a new one. Things being thus performed, a silver pipe shall be put through the wound into the bladder, wherof I have here given you divers forms, that you may take your choice, and so fit them to the wounds, and not the wounds

Of sewing the
wound when
the stone is ta-
ken forth.

to them, which oft-times in want of instruments the Surgeons are forced to doe, to the great harme of the patient.

Silver pipes to be put into the bladder when the stone is drawne out.



These must have no holes in their sides (as those here expressed) but only in their ends, that all the matter of the wound, and the filth gathered and concrete in the bladder may flow and be carried forth this way. When cleere urine shall beginne to flow out of the wound, there shall be no more need of a pipe; therefore if you continue it, & keepe it longer in the wound, there is some danger lest nature accustomed to that way, may afterwards neglect to send the water through the *Urethra*, or

ureinary passage. Neither must you forget to defend the parts neare to the wound with the following repercussive medicine, to hinder the defluxion and inflammation, which are incident by reason of the paine. *Rx. album. ovorum. nu. iii. pul. boli armeni, sanguinis dracon. an. ℥iii. olei ros. ℥i. pilorum leporinorum quantum sufficit*, make a medicine of the consistence of honey.

A repercussive
medicine.

CHAP. XLIV.

How to lay the patient after the stone is taken away.



Remedies for
the Cod, lest it
gangrenate.

AL L things which we have recited being faithfully and diligently performed, the patient shall be placed in his bed, laying under him as it were a pillow filled with bran, or oate chaffe, to drinke up the urine which floweth from him. You must have divers of these pillowes, that they may bee changed as neede shall require. Sometimes after the drawing forth of the stone, the blood in great quantity falleth into the Cod, which unless you be carefull to provide against, with discussing, drying, and consuming medicines, it is to be feared, that it may gangrenate. Wherefore if any accidents happen in curing these kinde of wounds, you must diligently withstand them. After some few daies a warme injection shall be cast into the bladder by the wound, consisting of the waters of plantain, night-shade & roses, with a little syrupe of dried roses. It wil help to temper the heat of the bladder caused both by the wound and contusion, as also by the violent thrusting in of the instruments. Also it sometimes happens, that after the drawing forth of the stone, clots of blood and other impurity may fall into the ureinary passage, and so stop the urine that it cannot flow forth. Therefore you must in like sort put a hollow probe for some daies into the *urethra*, that keeping the passage open, all the grosser filth may flow out together with the urine.

CHAP. XLV.

How to cure the wound made by the incision.

What things
hasten the
union.



You must cure this wound after the manner of other bloody wounds, to wit, by agglutination and cicatrization, the filth, or such things as may hinder, being taken away by detergent medicines. The patient shall hasten the agglutination if hee lye crosse-legged, and keep a slender diet untill the seventh or ninth day be past. Hee must wholly abstaine from

wine,

wine, unlesse it bee very weak; in stead thereof let him use a decoction of barley and licorish, or mead, or water and sugar, or boyled water mixed with syrups of dryed roses, maidenhaire, and the like. Let his meat bee ponado, raisons, stewed prunes, chickens boiled, with the cold seeds, lettuce, purslaine, sorrell, borage, spinage, and the like. If he be bound in his belly, a Physitian shall be called, who may helpe it, by appointing either *Cassia*, a glister, or some other kind of medicine, as he shall thinke good.

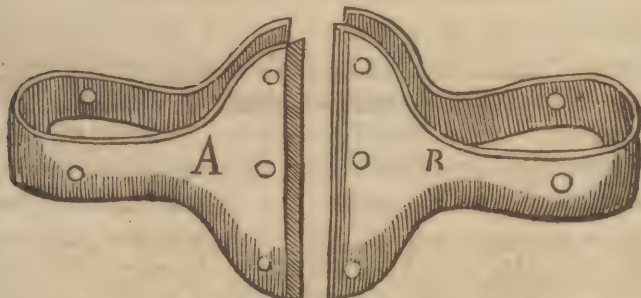
CHAP. XLVI.

*What cure is to be used to Ulcers, when as the urine flowes brought be-
long after the stone is drawne out.*

MAny after the stone is drawne out, cannot have the ulcer consolidated, therefore the urine flowes out this way continually by little and little, and against the patients will during the rest of his life, unlesse the Surgeon helpe it. Therefore the callous lippes of the wound must be amputated, so to make a green wound of an old ulcer; then must they be ryled up, and bound with the instrument wee terme a *Retinaculum* or stay; this must be perforated with three holes, answering to three other on the other side, needles shall be thrust through these holes, taking hold of much flesh, and shall be knit about it: then glutinative medicines shall be applyed, such as are Venice Turpentine, guma *Elemi*, *sanguis Draconis*, bole armenick, and the like; after five or sixe dayes the needles shall bee taken out, and also the stay taken away. For then you shall finde the wound almost glewed, and there will nothing remaine but onely to cicatrize it.

How to make a
fresh wound of
an old ulcer.

The figure of a Retinaculum or Stay.



*A. shewes the greater. B. the lesser, that you may know that you must use divers ac-
cording to the different bignesse of the wound.*

If a *Retinaculum* or stay be wanting, you may conjoyne the lippes of the wound after this following manner. Put two quilles somewhat longer than the wound, on each side one, and then presently thrust them through with needles having thread in them, taking hold of the flesh between, as often as need shall require, then tying the thread upon them. For thus the wound shall be agglutinated, and the fleshy lips of the wound kept from being torne, which would be in danger if the needle & thread were onely used.

What to doe in
want of a stay.

CHAP. XLVII.

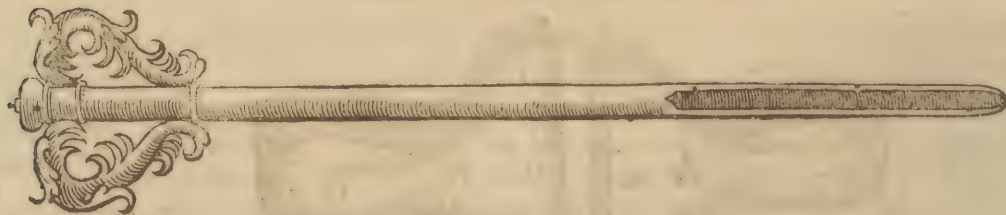
How to take stones out of womens bladders.

How to search
for the stone in
women.



EE know by the same signes that the stone is in a womans bladder as we do in a mans, yet it is far more easily searched by a *Catheter*, for that the necke of the bladder in the shorter, broader, and the more streight. Wherefore it may not onely be found by a *Catheter* put into the bladder, but also by the fingers thrust into the necke of the womb, turning them up towards the inner side of the *Os pubis*, and placing the sicke woman in the same posture as we mentioned in the cure of men. Yet you must observe that maides younger than seven yeares old, that are troubled with the stone, cannot bee searched by the neck of the wombe, without great violence. Therefore the stone must be drawne from them by the same meanes as from boyes, to wit, by thrusting the fingers into the fundament, for thus the stone being found out, and the lower belly also pressed with the other hand, it must be brought to the necke of the bladder, and then drawn forth by the forementioned meanes. Yet if the riper yeares of the patient permit it to bee done without violence, the whole worke shall be more easily and happily performed, by putting the fingers into the necke of the wombe, for that the bladder is nearer the neck of the womb, than it is to the right gut. Wherefore the fingers thus thrust in, a *Catheter* shall bee presently put into the necke of the bladder. This *Catheter* must bee hollow, or slit on the outside like those before described, but not crooked, but streight, as you may perceive by the following figure.

A *Catheter* upon which, being put into the Bladder, the necke thereof may be cut; to draw out a stone from a woman.



Upon this instrument the neck of the bladder may be cut, and then with the *Dilator* made for the same purpose, the incision shall bee dilated as much as need requires; yet with this caution, that seeing the necke of a womans bladder is the shorter, it admits not so great dilatation as a mans, for otherwise there is danger that it may come to the body of the bladder, whence an involuntary shedding of the water may ensue and continue thereafter. The incision being dilated, the Surgeon putting one or two of his fingers into the necke of the wombe, shall presse the bottom of the bladder, and then thrust his crooked instruments or *forcipes* in by the wound, and with these he shall easily pluck out the stone, which he shall keepe with his fingers from slipping backe againe. Yet *Laurence Collo* the Kings Surgeon, and both his sunnes (than whom I doe not know whether ever there were better cutters for the stone) doe otherwise performe this operation; for they doe not thrust their fingers into the fundament or necke of the wombe, but contenting themselves with putting in onely the *Guiders* (whereof we formerly made mention) into the passage of the urine, they presently thereupon make a streight incision directly at the mouth of the neck of the bladder, and not on the side, as is usually done in men. Then they gently by the same way thrust the *forcipes* hollowed on the outside formerly delineated, and so dilate the wound by tearing it as much as shall be sufficient for the drawing of the stone forth of the bladder. The residue of the cure is the same with that formerly mentioned in men: yet this is to be added, that if an ulcer grow in the neck of the bladder by reason of the rending it, you may by putting in the *speculum matricis*, dilate the neck of the womb, that fitting remedies may be applyed with the more ease.

CHAP. XLVIII.

Of the suppression of the Urine by internall causes.

BEsidēs the formentioned causes of suppressed urine, or difficulty of making of water, there are many other, lest any may thinke that the urine is stopt onely by the stone or gravell, as Surgeons thinke, who in this case presently use diuretickes. Therefore the urine is suppressd by externall and internall causes. The internall causes are clotted blood, tough phlegme, warts, caruncles bred in the passages of the urine, stones, and gravell; the urine is sometimes suppressd, because the matter thereof, to wit, the serous or whayish part of the blood, is either consumed by the feavourish heat, or carryed other wayes by sweats or a scouring; somtimes also the flatulencie there contained, or inflammation arising in the parts made for the urine and the neighbouring members, suppresses the urine. For the right gut if it be inflamed, intercepts the passage of the urine, either by a tumour whereby it presseth upon the bladder, or by the communication of the inflammation. Thus by the default of an ill affected liver, the urine is oft times suppressd in such as have the dropsie; or else by dulnesse or decay of the attractive, or separative faculty of the reines by some great distemper, or by the default of the animall faculty, as in such as are in a phrensie, lethargy, convulsion, apoplexie. Besides also a tough and viscid humour falling from the whole body into the passages of the urine, obstructs and shuts up the passage. Also too long holding the water somtimes causes this affect. For when the bladder is distended above measure, the passage thereof is drawn together and made more strait: hereto may be added that the too great distension of the bladder is a hinderance that it cannot use the expulsive faculty, and straiten it selfe about the urine to the exclusion thereof; hereto also paine succeeds, which presently dejects all the faculties of the part which it seazeth upon. Thus of late a certaine young man, riding on horsebacke before his Mistresse, and therefore not daring to make water, when he had great need so to doe, had his urine so suppressd that returning from his journey home into the city, he could by no meanes possible make water. In the meane time he had grievous paine in the bottom of his belly and the *perineum*, with gripings and a sweat all over his body, so that he almost sowned. I being called, when I had procured him to make water by putting in a hollow *Catheter*, and pressing the bottom of his belly, whereof he forthwith made two pints; I told them that it was not occasioned by the stone, which notwithstanding the standers by imagined to bee the occasion of that suppression of urine. For thence forward there appeared no signes of the stone in the youth, neither was he afterwards troubled with the stopping of his urine.

In suppression of the urine we must not presently fly to diureticks.

Why the too long holding the urine causeth the suppression thereof.

A history.

CHAP. XLIX.

A digression concerning the purging of such things as are unprofitable in the whole body by the urine.



LThink it not amisse to testifie by the following histories, the providence of nature in expelling by urine such things as are unprofitable in the whole body. Mounseigneur Sarret the Kings secretary was wounded in the right arme with a pistoll bullet; many and maligne symptomes happened thereupon, but principally great inflammations, flowing with much *sanies* and *pus* or quittance: it somtimes happened that without any reason this purulent and sanious effluxe of matter was stayd in the inflammation; wherof while we solicitously enquired into the cause, wee found both his stooles and water commixed with much purulent filth, and this through the whole course of the disease, wherof notwithstanding by gods assistance he recovered, and remains whole and sound; we observed

A history.

A history.

How the *pus* may flow from the wounded arme, by the urine and excrements.Lib. de loc. affect.
6. cap. 4.

ved that as long as his arme flowed with this filthy matter, so long were his excrements of the belly and bladder free from the sanious and purulent matter: as long on the contrary as the ulcers of the arme were dry, so long were the excrements of the guts and bladder sanious and purulent. The same accident befell a Gentleman called *Monsieur de la Croix*, who received a deadly wound with a sword on the left arme, though *German Charvall*, and *Master Rasse* most expert Surgeons, and others, who together with me had him in cure, thought it was not so for this reason, because the *pus* cannot runne so long a way in the body, neither if it were so, could that bee done without the infection and corruption of the whole masse of blood, whilest it flowest through the veines; therefore to be more probable that this quantity of filth, mixed with excrements and urine, flowed by reason of the default of the liver, or of some other bowell, rather than from the wounded arme: I was of a contrary opinion for these following reasons. First for that which was apparently seen in the patient; for as long as the excrement and urine were free from this purulent matter, so long his arme plentifully flowed therewith; this on the contrary being dry, much purulent matter was voided both by stoole and urine. Another was, that as our whole body is perspirable, so it is also (if I may so terme it) confluxible. The third was an example taken from the glasses which the French terme *Monte-vins* (that is, Mount-wines) for if a glasse that is full of wine be set under another that is fill'd with water, you may see the wine raise it selfe out of the lower vessell to the upper through the midst of the water, & so the water descend through the midst of the wine, yet so, that they do not mixe themselves, but the one take & possess the place of the other. If this may be done by art, by things only naturall, & to be discern'd by our eyes, what may be done in our bodies, in which by reason of the presence of a more noble soule, all the works of nature are far more perfect? What is it which we may despair to be done in the like case? For doth not the laudible blood flow to the guts, kidneyes, spleen, bladder of the gall, by the impulse of nature together with the excrements, which presently the parts themselves separate from their nutriment? Doth not milke from the breasts flow sometimes forth of the wombes of women lately delivered? Yet that cannot bee carryed downe thither, unlesse by the passages of the mamillary veines and arteryes, which meete with the mouthes of the vessels of the wombe in the middle of the streit muscles of the *Epigastrium*. Therefore no marvaile if according to *Galen* the *pus* unmixt with the blood flowing from the whole body by the veines and arteryes into the kidneyes and bladder, bee cast forth together with the urine. These and the like things are done by nature, not taught by any counsell or reason, but onely assisted by the strength of the segregating and expulsive faculty; and certainly we presently dissecting the dead body, observed that it all, as also all the bowels thereof, were free from inflammation and ulceration, neither was there any signe or impression of any purulent matter in any part thereof.

CHAP. L.

By what externall causes the urine is suppress'd; and prognostickes concerning the suppression thereof.



Here are also many externall causes, through whole occasion the urine may be suppress'd. Such are bathing and swimming in cold water; the too long continued application of Narcoticke medicines upon the Reines, *perinaeum* and share; the use of cold meats and drinckes, and such other like.

Why the dislocation of a *vertebra* of the loines may cause a suppression of urine.

Why the suppression of the urine becomes deadly.

Moreover, the dislocation of some *Vertebra* of the loines to the inside, for that it presseth the nerves disseminated thence into the bladder; therefore it causeth a stupidity or numnesse of the bladder. Whence it is, that it cannot perceive it selfe to bee vellicated by the acrimony of the urine, and consequently it is not stirred up to the expulsion thereof. But from whatsoever cause the suppression of the urine proceeds, if it persevere for some dayes, death is to bee feared, unlesse either a feaver, which may consume the matter of the urine, or a scouring or fluxe, which may divert it, shall happen thereupon. For thus by stay it acquireth an acride and venen-

nate

nate quality, which flowing by the veines readily infecteth the masse of blood, and carryed to the braine much molests it by reason of that similitude and sympathy of condition which the bladder hath with the *Meninges*. But nature, if prevalent, easily freeth it selfe from this danger by a manifest evacuation by stooles, otherwise it must necessarily call as it were to its aide, a feavourish heat, which may send the abounding matter of this serous humidity out through the skinne, either by a sensible evacuation as by sweat; because sweate and urine have one common matter: or else disperse and breath it out by transpiration, which is an insensible excretion.

A feaver following thereon helps the suppression of urine.

CHAP. LI.

Of bloody Urine.

SOME pisse pure blood, others mixt, and that either with urine, & then that which is expelled resembles the washing of flesh newly killed; or else with *pus*, or matter, and that either alone or mixed with the urine. There may be divers causes of this symptome, as the too great quantity of blood gathered in the body, which by the suppression of the accustomed & periodical evacuation, by the courses or hæmorrhoids, now turns its course to the reins & bladder; the fretting asunder of some vessell by an acride humour, or the breaking thereof by carrying or lifting of some heavie burden, by leaping, falling from high, a great blow, the falling of some weight upon the loins, riding post too violently, the too immoderate use of venery, & lastly, from any kind of painful & more violent exercise, by a rough & sharp stone in the kidneys, by the weaknesse of the retentive faculty of the kidneys, by a wound of some of the parts belonging to the urine, by the too frequent use of diureticke and hot meats and medicines, or else of things in their whole nature contrary to the urenary parts, for by these and the like causes, the reins are oft times so enflamed, that they necessarily impostumate, and at length the impostume being broken it turnes into an ulcer, casting forth quittance by the urine. In so great variety of the causes of bloody urine, we may gather whence the causes of this symptome may arise, by the depraved action of this, or that part, by the condition of the flowing blood, to wit, pure or mixt, and that either with the urine alone, or with *pus*. For example, if this bloody matter flow from the lungs, liver, kidneyes, dislocated *Vertebrae*, the streight gut, or other the like part: you may discern it by the seat of the paine and symptomes, as a feaver; and the propriety of the paine, and other things which have preceded, or are yet present. And we may gather the same by the plenty and quality, for if, for example, the *pus* flow from an ulcer of the arm, the purulent matter will flow by turnes, one while by the urine, so that little is cast forth by the ulcer; then presently on the contrary the urine becomes more cleere. That purulent matter which flows from the lungs by reason of an *Empyema*, or from the liver, or any other bowell placed above the midriffe, the *pus* which is cast forth with the urine, is both in greater plenty and more exactly mixed with the urine, than that which flows from the kidneyes and bladder. It neither belongs to our purpose, or a Surgeons office, either to undertake, or deliver the cure of this affect. It sufficeth onely to note that the cure of this symptome is not to be hoped for so long as the cause remains. And if this blood flow by the opening of a vessell, it shall be stayed by astringent medicines; if broken, by agglutinative; if corroded or fretted asunder, by sarcoticke.

The differences

Causes.

Signes of what causes they proceed.

Cure.

CHAP. LII.

Of the signes of ulcerated Kidneyes.

Why the matter which flows from the kidneyes is less stinking than that which flows from the bladder.

Had not determined to follow or particularly handle the causes of bloody urines, yet because that which is occasioned by the ulcerated reines or bladder more frequently happens, therefore I have thought good briefly to speake thereof in this place. The signes of an ulcer of the reines are, pain in the loines, matter howsoever mixt with the urine, never evacuated by it selfe, but alwaies flowing forth with the urine, and residing in the botome of the chamberpot, with a sanious and redde sediment, fleshy and as it were bloody fibres swimming up and downe in the urine, the smell of the filth is not so great as that which flowes from the ulcerated bladder, for that the kidneyes, seeing they are of a fleshy substance, doe farre better ripen and digest the purulent matter than the bladder which is nervous and bloodlesse.

CHAP. LIII.

Of the signes of the ulcerated Bladder.

Differences.



ULCERS are in the bottome of the bladder and the necke thereof. The signes of an ulcer in the bladder are, a deepe paine at the sharebones; the great stinch of the matter flowing therefrom; white and thin skins swimming up and downe in the water. But when the ulcer possesseth the necke of the bladder, the paine is more gentle, neither doth it trouble before the patient come to make water, but in the very making thereof, and a little while after.

But it is common both to the one and the other, that the yard is extended in making of water, to wit, by reason of the paine caused by the urine fretting of the ulcerated part in the passage by: neither is the matter seen mixed with the urine, as is usuall in an ulcer of the upper parts, because it is powred forth not together with the urine, but after it.

CHAP. LIV.

Prognosticks of the ulcerated Reines and Bladder.

Why ulcers of the bladder are cured with more difficulty.



ULCERS of the kidneyes are more easily and readily healed than those of the bladder; for fleshy parts more speedily heale and knit, than bloodlesse and nervous parts. Ulcers which are in the bottom of the bladder, are incurable, or certainly most difficult to heale, for besides that they are in a bloodlesse part, they are daily vellicated and exasperated by the continuall afflux of the contained urine, for all the urine is never evacuated: now that which remains after making water, becomes more acride by the distemper and heat of the part, for that the bladder is alwaies gathered about it, & dilated & straitned according to the quantity of the contained urine: therefore in the *Ischuria*, that is, the suppression or difficulty of making water, you may sometimes see a quart of water made at once. Those which have their legs fall away, having an ulcer in their bladder, are near their deaths. Ulcers arising in these parts, unlesse they be consolidated in a short time, remaine uncureable.

CHAP. LV.

What cure must be used in the suppression of the Urine.



IN curing the suppression of the urine, the indication must be taken from the nature of the disease, and cause thereof, if it bee yet present or not. But the diversity of the parts, by which being hurt, the *Ischuria* happens, intimates the variety of medicines, neither must we presently run to diuretickes, and things breaking the stone, which many Empericks doe. For hence grievous and malignant symptoms often arise, especially if this suppression proceed from an acride humour, or blood pressed out by a bruise, immoderate venery, and all more vehement exercise, a hot and acride potion, as of *Cantharides*, by too long abstaining from making water, by a *Phlegmon*, or ulcer of the urenary parts. For thus the paine and inflammation are encreased, whence followes a gangrene, & at length death. Wherefore attempt nothing in this case without the advice of a Physitian, no not when you must come to Surgery. For diureticks can scarce have place in another case, than when the urenary passages are obstructed by gravell, or a grosse and viscid humour, or else in some cold countrey, or in the application of Narcoticks to the loines, although we must not here use these before we have first made use of generall medicines: now Diuretickes may be administred sundry waies, as hereafter shall appeare.

Scopes of curing.

To what suppression of the urine diureticks must not be used.

To which and when to be used.

Rc. agrimon. urtic. parietar. furculos rubros habentis, an. m. i. rad. asparag. mundat. ʒiiii. gran. alkekengi, nu. xx. sem. malva ʒʒ. rad. acor. ʒi. bulliant omnia simul in sex libris aqua dulcis ad tertias, deinde coletur. Let the patient take ʒiiii. hereof with ʒi. of sugar candy, and drinke it warme fasting in a morning, three houres before meat. Thirty or forty Ivie berries beaten in white wine, and given the patient to drink some two houres before meate, are good for the same purpose. Also ʒi. of nettle seeds made into fine pouder and drunke in chicken broth, is good for the same purpose. A decoction also of Grummell, Goats saxifrage, pellitory of the wall, white saxifrage, the rootes of parsley, *asparagus, acorus, bruscus*, and orris drunke in the quantity of some three or foure ounces, is profitable also for the same purpose. Yet this following water is commended above the rest to provoke urine, & open the passages thereof, from what cause soever the stoppage thereof proceed. *Rc. radic. osmund. regal. cyp. bismal. gram. petrosel. fœnic. an. ʒii. raph. crassior. intaleol. ʒiiii. macerentur per noctem in aceto albo acerrimo, bulliant postea in aqua fluvialis ʒx. saxifrag. crist. marin. rub. tinct. milii solis, summitat. malvæ, bismal. an. p. ii. berul. cicer. rub. an. p. i. sem. melon. citrul. an. ʒii. ʒ. alkekengi, gra. xx. glycyrrhiz. ʒi. bulliant omnia simul ad tertias: in colatura infunde per noctem fol. sen. oriental. ʒʒ. fiat iterum parva ebullitio, in expressione colata infunde cinam. elect. ʒvi. colentur; iterum colatura injiciatur in alembicum vitreum, postea tereb. venet. lucid. ʒii. aq. vita ʒvi. agitentur omnia simul diligentissime. Lutetur alembicum luto sapientia, fiat destillatio lento igne in balneo maria. Use it after the following manner. *Rc. aq. stillatitia prescripta ʒii. aut iii.* According to the operation which it shall performe, let the patient take it foure houres before meat. Also raddish water destilled in *balneo maria* is given in the quantity of ʒiiii. with sugar, and that with good successe. Bathes and *semicupia*, or halfe bathes artificially made, relaxe, soften, dilate, and open all the body; therefore the prescribed diuretickes mixed with halfe a dram of Treacle may be fitly given at the going forth of the bath. These medicines following are judged fit to cleanse the ulcers of the kidneyes and bladder. Syrupe of maiden-haire, of roses, taken in the quantity of ʒi. with *hydromel*, or barley water: Asses or Goats milke are also much commended in this affect, because they cleanse the ulcers by their terous or whayish portion, and agglutinate by their cheeselike. They must bee taken warme from the dugges, with honey of roses or a little salt, lest they corrupt in the stomacke; and that to the quantity of foure ounces, drinking or eating nothing presently upon it. The following Trochisces are also good for the same purpose. *Rc. quatuor sem. frigid major. seminis papaveris albi, portulac. plantag. cydon, myrtil. gum. tragacanth. et arab. pincar.**

A diurectick water.

Why the use of diurecticks is better after bathing. To cleanse the ulcers of the kidneyes and bladder.

Trochisces to heale the ulcers of the kidneyes.

glycyrrhi. mund. hordei mund. macag. psilii, amygdal. dulcium, an. ʒ i. boli armen. sanguin. dracon. spodii, rosar. mastich. terra. sigil. myrrha, an. ʒ ii. cum oxymelite, conficiantur secundum artem trochisci. Let the patient take ʒ ʒ. dissolved in whay, ptisan, barley water, and the like; they may also be profitably dissolved in plantaine water, and injected into the bladder. Let the patient abstaine from wine, and instead thereof let him use barley water, or *hydromel*, or a ptisan made of an ounce of raisins of the sun, stoned and boyled in five pints of faire water, in an earthen pipkin well leaded, or in a glasse, untill one pinte be consumed, adding thereto of liquorice scraped and beaten ʒ i. of the cold seeds likewise beaten two drams. Let it, after it hath boyled a little more, be strayned through an hypocras bagge, with a quarterne of sugar, and two drams of choice cinamon added thereto, and so let it be kept for usuall drinke.

Drinke in stead
of wine.

CHAP. LVI.

Of the Diabete, or inability to hold the Urine.

What Diabete is.



The causes.

Signes.

Why the urines
are warrish.

The cure.

Narcoticke
things to be
applyed to the
loines.

H Diabete is a disease, wherein presently after one hath drunke, the urine is presently made in great plenty, by the dissolution of the retentive faculty of the reines, and the depravation of immoderation of the attractive faculty. The externall causes are the unseasonable and immoderate use of hot and diureticke things, and all more violent and vehement exercises. The internall causes are the inflammation of the liver, lungs, spleen, but especially of the kidneyes and bladder. This affect must be diligently distinguished from the excretion of morbisick causes by urine. The loines in this disease are molested with a pricking and biting pain, and there is a continuall & unquenchable thirst: and although this disease proceed from a hot distemper, yet the urine is not coloured, red, troubled, or thick, but thin, and white or waterish, by reason the matter thereof makes very small stay in the stomacke, liver, and hollow veine, being presently drawn away by the heat of the kidneyes or bladder. If the affect long endure, the patient for want of nourishment falleth away, whence certaine death ensues. For the cure of so great a disease, the matter must be purged, which causes or feedes the inflammation or *phlegmon*, and consequently blood must be let. We must abstain from the foure cold seedes, for although they may profit by their first quality, yet will they hurt by their diuretick faculty. Refrigerating and astringent nourishments must bee used, and such as generate grosse humours, as Rice, thicke and astringent wine mixed with much water. Exceeding cold, yea Narcotick things shall be applyed to the loins, for otherwise by reason of the thickness of the muscles of those parts, the force, unless of exceeding refrigerating things, will not be able to arrive at the reins; of this kind are oile of white poppy, henbain, *opium*, purslain, and lettuce seed, mandrage vinegar, and the like: of which, cataplasmes, plaisters, and ointments, may be made, fit to corroborate the parts, and correct the heat.

CHAP. LVII.

Of the Strangury.

What the
Strangury is.

The causes.



H Strangury is an affect having some affinity with the *Diabete*, as that wherein the water is unvoluntarily made, but not together at once, but by drops, continually and with paine. The externall causes of a strangury are, the too abundant drinking of cold water, & all too long stay in a cold place. The internall causes are, the defluxion of cold humours into the urinary parts, for hence they are resolved by a certain palsie, and the *sphincter* of the bladder is relaxed, so that he cannot hold his water according to his desire: inflammation also & all distemper causeth this affect, and whatsoever in some sort obstructs the passage of the urine, as clotted blood, thick phlegme, gravell, and the like. And because, according to *Galens* opinion, all sorts of distemper may cause this disease, divers medicines

dicines shall be appointed according to the difference of the distemper. Therefore against a cold distemper fomentations shall be provided of a decoction of mallows, roses, *origanum*, calamint, and the like, & so applied to the privities: then presently after let them be anointed with oile of bayes, and of *Castoreum*, and the like. Strong and pure wine shall be prescribed for his drinke, and that not onely in this cause, but also when the Strangury happens by the occasion of obstruction, caused by a grosse and cold humor, if so be that the body be not plethoricke. But if inflammation together with a *Plethora* or fulnesse hath caused this affect, wee may, according to *Galens* advice, heale it by blood-letting. But if obstruction bee in fault, that shall be taken away by diuretickes either hot or cold, according to the condition of the matter obstructing. We here omit to speake of the *Dysuria*, or difficulty of making water, because the remedies are in generall the same with those which are used in the *Ischuria*, or suppression of urine.

Com. ad aphor.
15. sect. 3.

Ad aphor. 48.
sect. 7.

CHAP. LVIII.

Of the Cholike.



Whosoever the Guts being obstructed, or otherwise affected, the excrements are hindred from passing forth, & if the fault bee in the small guts, the affect is termed *Volvulus*, *Ileos*, & *misere mei*, but if it be in the greater guts, it is called the Cholick, from the part affected, which is the *Colon*, that is, the continuity of the greater guts; but especially that portion of the greater guts,

What *Ileos*, or
iliacapastris
What *Cholera*
passio or the
Cholicke is.
Lib. 3.

Lib. 3. c. 43.

which is properly and especially named *Colon*, or the cholicke Gut. Therefore *Avicen* rightly defines the Cholicke, A paine of the Guts wherein the excrements are difficultly evacuated by the fundament. *Paulus Aegineta* reduceth all the causes of the Colicke how various soever to foure heads, to wit, to the grosse-ness, or toughnesse of the humours impact in the coates of the guts: flatulencies hindred from passage forth: the inflammation of the guts: and lastly, the collection of acride and biting humors. Now we will treat of each of these in particular. Almost the same causes produce the grossenesse of humors, and flatulencies in the guts, to wit, the use of flatulent, and phlegmaticke, tough, and viscid meats, yea also of such as are of good nourishment, if sundry thereof, and of sundry kinds be eaten at the same meale, and in greater quantity than is fit. For hence crudity and obstruction, and at length the collection of flatulencies, whereon a tensive paine ensues. This kind of Cholick is also caused by the use of crude fruits, and too cold drink, drunken especially when as any is too hot by exercise, or any other way: for thus the stomacke and the guts continued thereto, are refrigerated, and the humours and excrements therein contained are congealed, and, as it were, bound up. The Cholicke which is caused by the inflammation of the kidneyes, happens by the Sympathy of the reines pained or troubled with the stone or gravell contained in them or the ureters. Therefore then also paine troubles the patient at his hips and loynes, because the nerves, which arising from the *vertebra* of the loins, are oppressed by the weight of the stones and gravell, about the joint of the hippe are disseminated into the muscles of the loines and thigh. Also the ureters are pained (for they seeme nothing else but certaine hollow nerves) and also the cremaster muscles, so that the patients testicles may seeme to be drawne upwards with much violence. Hence great, phlegmaticke, and cholericke vomiting, and sweat of the whole body, all which doe not surcease before that the stone, or gravell shall bee forced downe into the bladder. Now vomiting happens in this affect, for that the ventricle by reason of its continuity and neighbourhood which it hath with the guts, suffers by consent or sympathy. For the stomacke is of the same kind or matter as the guts are, so that the guts seeme nothing else but a certaine production of the stomacke. Therefore if at any time nature endeavour to expell any thing that is troublesome in the kidneyes, ureters, coats of the guts, mesentery, *pancreas*, and hypochondries, it causeth a Colicke with paine and vomiting. A hot and dry distemper also causeth the Colicke, producing a prick-

The manner of
the Stone chol-
licke.

How a hot di-
stemper cau-
seth the
Cholicke.

The folding of
the guts the
cause of the
collick.

ing and biting paine by drying the excrements shut up in the guts, as also by wasting as it were the radical humours of that place provided for the lubricating of the guts. Acride, viscide, and tough phlegme causeth the same. There is also another cause of the Collicke which is not so common, to wit, the twining of the guts, that is, when they are so twined, folded, and doubled, that the excrements, as it were, bound in their knots, cannot be expelled, as it manifestly happens in the rupture called *Enterocoele*, by the falling of the guts into the cod. Likewise also wormes generated in the Collicke Gut, whilst that they mutually fold or twine themselves up, doe also twine the *Colon* it selfe and fold it with them. Also the too long stay of the excrements in the guts, whether it shall happen by the peculiar default of the too hot and dry body of the patient, or by his diet, that is, the use of too dry meats, or exercises and paines taken in the heate of the sunne, or by the greatnesse of businesse, the minde being carryed away, causeth the Collicke, with headache, and plenty of vapours flying upwards.

A history.

Signs whereby
we know that
the collick pro-
ceeds from this
or that cause.

I remember I once dissected the body of a boy of some twelve yeares old, who had his guts folded with many as it were eyes or knots, of the restrained, too hard & dry excrements, the which he cast out by his mouth a little before his death, which brought him to his end, being not helped in time by fitting medicines. Now these are the causes of the Collick, according to the opinion of the ancient and moderne Physicians, of whose signes I judge it not amisse here to treat in particular. You shall know the patient is troubled with the stone collick by the paine which is fixed and as it were kept in one place, to wit, of the kidnies, by his former manner of life, as, if the patient hath formerly voyded stones or gravell together with his urine, by the paine of the hips and testicles for the formerly mentioned causes, & lastly, by that the patient casts forth by stooles or urine, for that the great & laborious endeavour of nature to cast forth the stone which is in the kidnies, is propagated by a certaine sympathy, & like study of the neighbouring parts stirring up the expulsive faculties each to his work. The signes of a flatulent collick are, a tensive pain, such as if the guts were rent or torne in pieces, together with a noise or rumbling in the belly. The force of the shut up wind is sometimes so great, that it rendeth or teareth the guts in sunder, no otherwise than a swines bladder too hard blown up. Which when it happens, the patient dyes with much vomiting, because the stomach oppressed with wind, can containe nor embrace no meat. The collick which is occasioned by the too long keeping in of the excrements, is accompanied with the weight and pain of the belly, the tension of the guts, headach, apparent hardness of the belly, & the complaint of the patient that he hath not gone to stooles in a long time. That which proceeds from a cholerick inflammation, yeelds a sense of great heat & pulsation in the midst of the belly, by reason of the veins and arteries which are in the *pancreas* and coats of the guts, and there are the other signes of a *Phlegmon*, although also this as it were inflammation may arise also from salt, acride & viscous phlegme, which nature can neither expel upwards by vomit, nor downwards by stool, this sundry times is associated with a difficulty of making water, for that when as the right gut is inflamed the bladder is pressed by reason of their sociery or neighbourhood. The collick which proceeds from the contorsion of the guts shews it selfe by the excessive cruelty of the paine, arising for that the guts are not in their due site and place, and because the excrements by their too long detension acquire a preternaturall heat, & this is the cause of the death of many such as have Ruptures, for that the gut falling down from the naturall place into the Cod, being a preternatural place, is redoubled & kept there as it were bound, whereby the excrements being baked becoming more acridly hot cause inflammation, and by raising up flatulencies encrease the distension through all the guts, untill at length a deadly *Ileus* or collick arising, they come forth at the mouth. For prognosticks; it is better to have the paine in the collick to wander up and down, than to be fixed; it is good also that the excrements are not wholly suppressed. But the evil signes that here appeare pronounce the affect either difficult or deadly. Now these shew that it is deadly, intolerable tormenting paine, continuall vomiting, cold sweat, coldnesse of the extreme parts, hickiting by reason of the sympathy the stomach hath with the guts, a Phrensie by the consent of the braine with the stomacke, and oft. times a

*Avicen li. 3. Hip.
aphor. 10. sect. 4.*

con-

convulsion by drawing the matter into the nerves. But such as have griping and pain about their navil and loines, which can neither be helped by medicine nor otherwise, it ends in a Dropsie. The cure must be diversified according to the variety of the causes, for the stone collick is cured by medicines proper to the stone; that which is caused by an *Enterocoele*, is cured by the onely restoring the gut to its place; that which is occasioned by wormes, requires medicines fit to kill and cast forth the wormes. But that which proceeds from the weaknesse and refrigeration of the guts and stomach, is cured by heating and strengthening medicines atwell applyed outwardly as taken in inwardly by the mouth, or otherwaies. The beginning of the cure of that which is occasioned by tough flegme and flatulencies, is by the mitigation of the paine, seeing there is nothing which more dejects the powers than paine. To this purpose shall you provide bathes, *Semicupia*, fomentations of mallowes, marsh-mallowes, violet leaves, penyroyall, fennell, *Origanum*, the seeds of time and fœnugreek, flowers of camomill, melilore, and other such like, which have power to heat, dry, attenuate, and rarifie the skin, so to dissipate the wind. But all such must be actually hot. Also the belly may be anointed with this following ointment. *Rc. olei chamæm. aneth. butyr. recens. an. ʒi. sem. apii, petros. & galang. an. ʒʒ. aq. vitæ, ol. salvia aut thymi chimice extract. q.s.* The following liniment is much commended by *Hollerius*. *Rc. olei rut. & nardi, an. ʒvi. galbani cum aq. vit. dissoluti ʒii. liquefactis simul adde Zibetæ gr. iv. croci, gr. vi. fiat linimentum.* Also little bags made with miller, oates and salt fryed with a little white wine in a frying pan, shall be applyed hot upon the belly & flunkes, and renewed before they grow cold. You may, in stead of these bags, use ox-bladders halfe filled with a decoction of resolving things; as salt, rosemary, thime, lavender, bay-berries and the like: then inject a glyster being thus made. *Rc. quatuor remol. an. m. i. orig. puleg. calamenth. an. m. ʒ. anisi, carui an. m. ʒ. flor. aneth. an. p. i. bulliant in hydromele ad lib. i. in qua dissolve bened. laxat. mellis anthosati, facc. rub. an. ʒi. olei aneth. & chamem. an. ʒʒ.* Let a glyster be made to bee injected at twice; for the guts being stretched out cannot containe the accustomed dosis of a glyster: also this following glyster is much approved. *Rc. vini malvat. & olei nucum, an. ʒiii. aqua vitæ, ʒi. olei juniperi, & rut. per quintam essent. extract. an. ʒiii.* Let this be injected as hot as the patient can endure. I have oft-times as by miracle helped intolerable paine caused by the wind collick and phlegme with this glyster. *Avicen* prescribes a carminative glyster made of hysope, *origanum*, *acorus*, aniseeds and English galengall. Let the patient feed upon meats of good juice & easie digestion, as broths made with the yolks of eggs, saffron, hot herbes and a nutmeg; let him drink good wine, as Muskedine, or Hypocras made with good wine so to heat the stomach & guts. For in *Galens* opinion, all windiness is generated by a remisse heat. But if the pain shall continue, a large Cupping-glasse shall bee applyed to the navill to draw and dissipate the windiness; the belly shall be bound with strong and broad ligatures, to strengthen the guts, and discusse the matter of flatulencies. The patients taught by nature, use this remedy, whilst none admonishing them, they presse the belly with their hands in the bitterness of paine. But if the paine cannot be thus appeased, we must come to such medicines as worke by an occult propertie, as the dryed gut of a Wolfe, for a dram thereof made into powder is given in wine with good successe. That collick which is caused by a cholerick inflammation requires contrary medicines, to wit, bloodletting and a refrigerating diet; potions made of *Diacatholicon* and *Cassia* dissolved in barley water, also cooling glysters. *Avicen* prescribes narcoticks, for that being cold, they are contrary to the morbifick cause which is hot and dry; such are pills of *Philonium*. Also pills of *Hyrapicra* in the quantity of Div. with *opium* and saffron, of each one graice, may be used. Also baths are appointed, made of water wherein mallowes, marsh-mallowes, violet leaves, flowers of white lillies, lettuce, purslaine, have bin boyled, to correct the acrimonie of the cholericke and hot humours, whence the disease and symptome ariseth. That collick which is like to this, and proceeds from salt, acride, thick and tough phlegme, is cured, the humour being first attenuated and diffused, and at length evacuated by medicines taken by the mouth and otherwise according to the prescription of the learned Philitian. But *Avicen* cures that which is occasioned by the suppression of the hardened excrements, and twining of them by meates

The cure.

Baths and anodine fomentations.

An oymntment.

Why glysters in the collick must be given in lesse quantity.

Specifick medicines.

The cure of a cholerick collick.

which

The force of
quicksilver in
the unfolding
of the guts.
A history.

which have an emollient faculty, such as humecting broths, as that which is made of an old cock tired with running, & threshed to death, & so boyled with dill, polypody and a little salt, untill the flesh fall from the bones; also he useth detergent glysters such as this which followes. *R. beta, m. i. furfuris, p. i. ficus, nu. x. alth. m. i. fiat decoctio ad lb. i. in qua dissolvenitri & muria an. ℥ii. sacch. rub. ℥i. ol. sesamini, ℥ii.* But if the obstruction be more contumacious, you must use more powerfull ones made *ex cyclamin. centaurio, & hiera diacolocinth. ad ℥ii.* But if the obstruction do notwithstanding remaine, so that the excrements come forth at the mouth, *Marianus Sanctus* wiseth (by the counsell of many who have so freed themselves from this deadly symptome) to drink three pounds of quicksilver with water onely. For the doubled and as it were twined up gut is unfolded by the weight of the quicksilver, and the excrements are deprest and thrust forth, and the wormes are killed which gave occasion to this affect. *John of S. Germaines* that most worthy Apothecary hath told me that hee saw a Gentleman who when as hee could not bee freed from the paine of the collick by any means prescribed by learned Physitians, at length by the counsell of a certaine Germane his friend, drank three ounces of oile of sweet almonds drawne without fire, and mixed with some white wine and pellitory water, and swallowed a leaden bullet besmeared with quicksilver, and that bullet comming presently out by his fundament, he was wholly freed from his collick.

CHAP. LIX.

Of Phlebotomie, or Blood-letting.

What Phlebotomie is.

The use.

Repletion twofold.

The signes.

Five scopes in letting blood.

From whom we must not draw blood.

Phlebotomie is the opening of a veine, evacuating the blood with the rest of the humours; thus Arteriotomie, is the opening of an Artery. The first scope of Phlebotomie is the evacuation of the blood offending in quantity, although oft-times, the Physicians intention is to draw forth the blood which offends in quality, or either way by opening a veine. Repletion which is caused by the quantity is two-fold, the one *ad vires*, that is, to the strength, the veines being otherwise not very much swelled; this makes men infirme and weake, nature not able to beare this humour, of what kinde soever it be. The other is termed *ad vasa*, that is, to the vessels, the which is so called comparatively to the plenty of blood, although the strength may very well away therewith. The vessels are oft-times broke by this kind of repletion, so that the patient casts and spits up blood, or else evacuates it by the nose, wombe, hæmorrhoids, or *varices*. The repletion which is *ad vires* is knowne by the heaviness and wearisomness of the whole body; but that which is *ad vasa* is perceived by their distension and fulness, both of them stand in neede of evacuation. But blood is onely to bee let by opening a veine, for five respects: the first is to lessen the abundance of blood, as in Phlethorick bodies, and those who are troubled with inflammation without any plenitude. The second is for diversion, or revulsion, as when a veine of the right arme is opened to stay the bleeding of the left nostrile. The third is to allure or draw downe, as when the *saphena* is opened in the ankle to draw downe the courses in women. The fourth is for alteration or introduction of another quality, as when in sharpe feavers we open a veine to breathe out that blood which is heated in the vessels, and cooling the residue which remains behind. The fift is to prevent imminent diseases, as when in the Spring and Autumne we draw blood by opening a veine in such as are subject to spitting of blood, the squinancie, pleurisie, falling sickness, apoplexie, madness, gout, or in such as are wounded, for to prevent the inflammation which is to be feared. Before blood-letting, if there bee any old excrements in the guts, they shall bee evacuated by a gentle glyster, or suppository, lest the mesaraicke veines should thence draw unto them any impuritie. Blood must not be drawne from ancient people unlesse some present necessity require it, lest the native heat which is but languid in them should be brought to extreme debility, and their substance decay; neither must any in like sort be taken from children, for feare of

of resolving their powers by reason of the tendernesse of their substance, & rareness of their habit. The quantity of blood which is to be let, must bee considered by the strength of the patient, and greatnesse of the disease: therefore if the patient bee weake, and the disease require large evacuation, it will bee convenient to part the letting of blood, yea by the interposition of some dayes. The veine of the forehead being opened is good for the paine of the hind part of the head; yet first we foment the part with warme water, that so the skin may be the softer, and the blood drawne into the veines in greater plenty. In the squinancie the veines which are under the tongue must be opened assant, without putting any ligatures about the neck for feare of strangling. Phlebotomie is necessary in all diseases which stop or hinder the breathing, or take away the voice or speech, as likewise in all contusions by a heaue stroke, or fall from high, in an apoplexie, squinancie, and burning feaver, though the strength be not great, nor the blood faulty in quantity or quality, blood must not be let in the height of a fever. Most judge it fit to draw blood from the veines most remote from the affected and inflamed part, for that thus the course of the humours may be diverted, the next veines on the contrary being opened the humours may be the more drawne into the affected part, and so increase the burden and paine. But this opinion of theirs is very erroneous, for an opened veine alwaies evacuates and disburdens the next part. For I have sundry times opened the veines and arteries of the affected part, as of the hands & feet in the Gout of these parts; of the temples in the Megrin; whereupon the paine alwayes was somewhat asswaged, for that together with the evacuated blood, the malignitie of the Gout, and the hot spirits (the causers of the head-ach or Megrin) were evacuated. For thus *Galen* wisheth to open the arteries of the temples in a great and contumacious defluxion falling upon the eyes, or in the Megrin or head-ach.

When and for
what kind of
disease.

13. meth. cap. ult.

CHAP. LX.

How to open a veine, and draw blood from thence.



THE first thing is, to seat or place the patient in as good a posture as you can, to wit, in his bed if he be weak; but in a chaire if strong, yet so, that the light may fall directly upon the veine which you intend to open. Then the Surgeon shall rub the arme with his hand, or a warme linnen cloth, that the blood may flow the more plentifully into the vein. Then he shall bind the veine with a ligature a little above the place appointed to be opened, and hee shall draw back the blood upwards towards the ligature from the lower part; and if it be the right arme, he shall take hold thereof with his left hand; but if the left, then with his right hand, pressing the veine in the meane time with his thumbe a little below the place where you meane to open it, lest it should slip away; and that it may bee the more swolne by forcing up the blood. Then with his naile hee shall marke or designe the place to be opened, and shall annoint it being so marked with butter or oyle whereby the skin may be relaxed, and the lancet enter more easily, and therefore the section may be the lesse painefull. Hee shall hold his lancet between his thumb and fore finger, neither too neer, nor too far from the point; he shall rest his other three fingers upon the patients arme, that so his hand may be the more steddye & lesse trembling. Then shall he open the vein with an incision agreeable to the magnitude of the vessell, & the indifferēt thicknesse of the contained blood somewhat assant, diligently avoiding the artery which lies under the *basilica*, & the nerve, or tendon of the two-headed muscle, which lyes under the Median veine. But for the Cephalicke it may be opened without danger. As much blood as is sufficient being drawne, according to the minde of the Physician, hee shall loose the ligature, and laying a little bouldster under, hee shall with a ligature bind up the wounded part to stay the bleeding; the ligation shall be neither too strait, nor loose, but so that the patient may freely bend and extend his arme; wherefore whilest that is in doing he must not hold his arme streight out, but gently bended, otherwise he cannot freely bend it.

How to place
the patient.

Rubbing the
arme.

Binding it be-
fore we open
the veine.

Why the *basilica*
& median may
not be opened
so safely as the
cephalick.

The binding up
after blood-let-
ting.

The

The figure of a Lanceet to let blood withall.



CHAP. LXI.

Of Cupping-glasses, or ventoses.

The use of cupping-glasses.

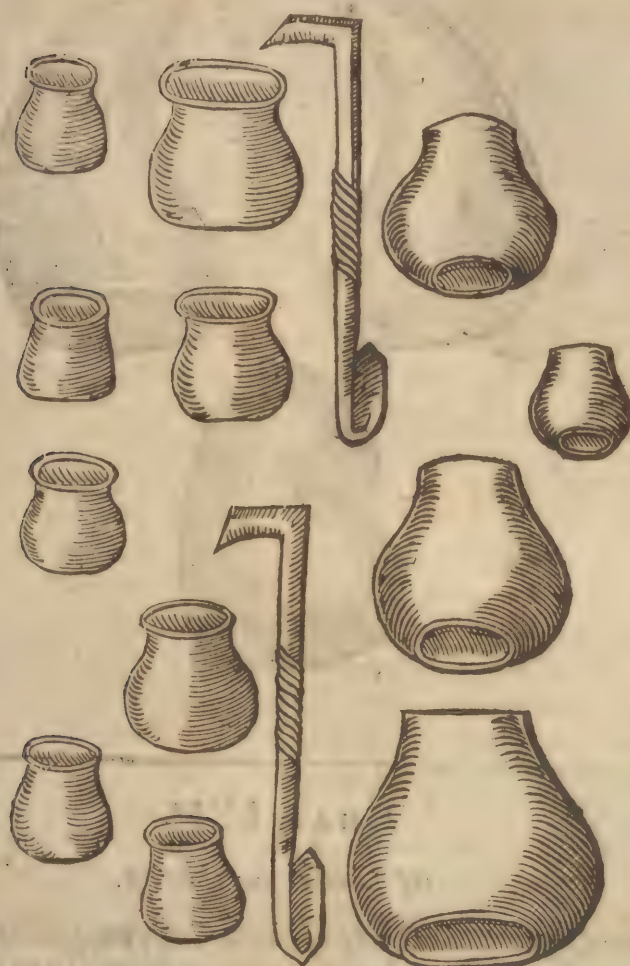


Lib. 8. cap. 8.

Cupping-glasses are applyed especially when the matter conjunct and impact in any part is to be evacuated, and then chiefly there is place for scarification after the cupping-glasses : yet they are also applyed for revulsion and diversion; for when an humour continually flowes down into the eyes, they may be applyed to the shoulders with a great flame, for so they draw more strongly and effectually. They are also applyed under womens breasts, for to stop the courses flowing too immoderately, but to their thighs for to provoke them. They are also applyed to such as are bit by venemous beasts, as also to parts possessed by a pestiferous *Bubo* or Carbuncle, so to draw the poyson from within outwards. For (as *Celsus* saith) a Cupping-glasse where it is fastned on, if the skin be first scarified, drawes forth blood, but if it bee whole, then it draws spirit. Also they are applyed to the belly, when any grosse or thick windinesse, shut up in the guts, or membraines of the muscles of the *Epigastrium*, or lower belly causing the Collick, is to bee discussed. Also they are fastned to the Hypochondry's, when as flatulency in the liver, or spleene swels up the entraile lying thereunder, or in too great a bleeding at the nose. Also they are set against the Reines in the bottome of the belly, whereas the ureters run downe to draw downe the stone into the bladder, when as it stops in the middle or entrance of the ureter. You shall make choice of greater and lesser Cupping-glasses according to the condition of the part, and the contained matter. But to those parts whereto these cannot by reason of their greatnesse be applyed, you may fit hornes for the same purpose.

The

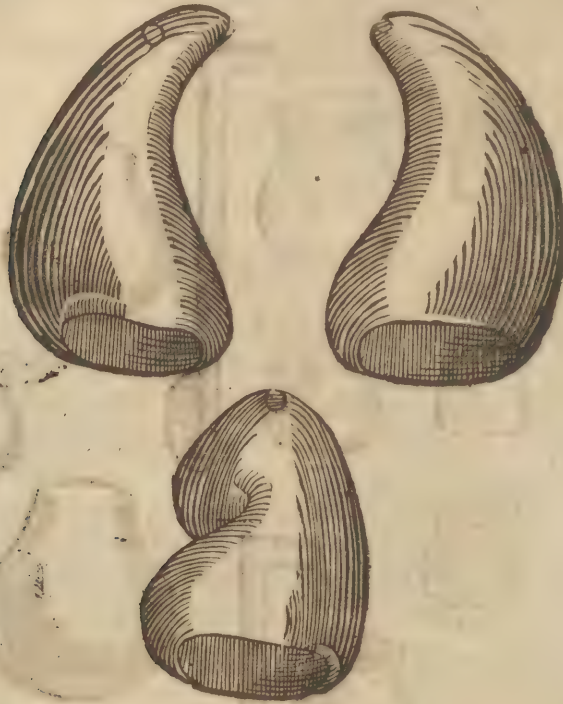
The figures of Copping-glasses of different bignesse, with little holes in their bottomes, which shall be stopped with waxe when you apply them to the part; but opened when you would take them off, that so the aire may enter in with the more ease.



A Lancer.



Hornes which without fire, by onely sucking at the upper hole, draw from the part lying under them.



CHAP. LXII.

Of Leaches, and their use.

The use of
Leaches.



How to apply
them.

How to cause
them to fall off.

IN those parts of the body whereto Cupping-glasses and hornes cannot be applyed, to those Leaches may for the most part be put, as to the fundament to open the coat of the hæmorrhoides veines, to the mouth of the wombe, the gums, lips, nose, fingers. After the Leach being filled with blood shal fall off, if the disease require a large evacuation of blood, and the part affected may endure it, Cupping-glasses, or hornes, or other Leaches shall be substituted. If the Leaches bee handled with the bare hand, they are angered, and become so stomackfull as that they will not bite; wherefore you shall hold them in a white & clean linnen cloath, & apply them to the skin, being first lightly scarified, or besmeared with the blood of some other creature, for thus they will take hold of the flesh, together with the skin more greedily & fully. To cause them fall off you shall put some powder of Aloes, salt or ashes upon their heads. If any desire to know how much blood they have drawne, let him sprinkle them with salt made into powder, as soone as they are come off, for thus they will vomit up what blood soever they have sucked. If you desire they should sucke more blood than they are able to containe, cut off their tailes as they suck, for thus they will make no end of sucking, for that it runs out as they suck it. The Leaches by sucking draw the blood not onely from the affected part whereto they are applyed, but also from the adjacent and distant parts. Also sometimes the part bleeds a good while after the Leaches be fallen away, which happens not by scarification after the application of Cupping-glasses or hornes. If you cannot stop the bleeding after the falling away of the Leaches, then presse the halfe of a beane upon the wound, untill it stick of it self, for thus it will stay; also a burnt rag may be fitly applyed with a little boulder and fit ligature.

The end of the seventeenth Booke.



OF THE GOUTE.

THE EIGHTEENTH BOOKE.

CHAP. I.

The description of the Goute.

TH E Goute is a disease occupying and harming the substance of the Joints What it is. by the falling downe and collection of a virulent matter accompanied by the foure humors. This word *Arthritis* or Goute, is generall for every joint so affected; yet it enjoyes divers particular names in sundry joints of the body: as that which falleth upon the joint of the Jaw, is termed *Siagona* Particular *gra*, for that the Greekes call the Jaw *Siagon*; that which affects the necke is termed *Trachelagra* gouts., for that the neck is in Greeke termed *Trachelos*: that which troubles the backe bone is called *Rhachisagra*, for the spine is termed *Rhachis*: that which molests the shoulders *Omagra*, for the joint of the shoulder is stiled *Omos*: that which affects the joints of the Collar-bones *Cleisagra*, for that the Greeks call this bone *Cleis*: that in the Elbow, *Pchyagra*, for *Pechis* signifieth the elbow: the goutte in the hand is called *Chiragra*, in the Hippe *Ischias*, in the knee *Gonagra*, in the teet *Podagra*, for that the Hand, Hippe, Knee, and Foote are in Greeke termed *Cheir*, *Ischion*, *Gony*, and *Pous*. When as there is great abundance of humours in a body, and the patient leads a sedentary life, not some one, but all the joints of the body are at once troubled with the Goute.

CHAP. II.

Of the occult causes of the Goute.

TH E humor causing the Goute is not of a more knowne, or easily exprest nature than that which causeth the plague, *Lues venerea*, or falling sicknesse. For it is of a kind and nature cleane different from that which causeth a *Pblegmon*, *œdema*, *erysipelas*, or *Scirrhus*; for, as *Aëtius* saith, it never commeth to suppuration like other humours, not for that, as I thinke, because it happens in bloodles parts, but through the occasion of some occlut malignity. Here-to may be added that the humours which cause the forementioned tumors, when as they fall downe upon any part, not then truly when they are turned into *pus* or matter, do they cause so sharpe paines as that which causeth the Goute, for the paine thereof is farre more sharpe, than of that humour which breedeth an ulcerated *Cancer*. Besides these humours, when they fall upon the joints through any other occasion, never turne into knots, onely that which causeth the Goute in the joints;

The resemblance of the Gout to the Epilepsie.

The strange variety of the Gout.

after it hath fallen thither, is at length hardened into a certaine knotty and as it were plaister-like substance to bee amended by no remedies. But seeing it offends not the parts by which it flowes downe, (no more than the matter which creeping upwards from the lower parts to the braine, causeth the *Epilepsie*) as soone as it falleth into the spaces of the Joints it causeth cruell paine, one while with heate, another while with cold. For you may see some troubled with the Goute, who complaine that their pained Joints are burnt, there are others to whom they seeme colder than any ice, so that they cannot bee sufficiently heated to their hearts desire; verily you may sometimes see in the same body troubled with the Goute, that the Joints of the right side will as it were burne with heat, but on the left side will be stiffe with cold; or which is more, the knee in the same side to be tormented with a hot distemper, and the ancle troubled with a cold. Lastly, there sometimes happens a succession of paine in a succession of dayes, as the same joints will be this day troubled with a hot, to morrow with a cold distemper, so that wee need not marvaile to see Physitians prescribe one while hot, another while cold medicines against the same disease of the same part and body. Also it sometimes happens that the malignity of this humour doth not onely not yield to medicines, but is rather made worse, so that the patients affirme that they are far better when they have none, than when they have any remedies applyed. For all things being rightly done, and according to reason, yet the disease will come againe at certain seasons by fits: and hereupon it is sayd by *Horace*:

*Qui cupit, aut metuit, juvat illam sic domus aut res,
ut lippum picta tabula, fomens a podagram.*

Riches the covetous, and fearefull so doe please,
As pictures fore eyes, Bathes the Goute doe ease.

Certainely such as have this disease hereditarily, can no more bee helped and thoroughly freed therefrom, than those in whom the matter of the disease is become knotty, whereof *Ovid* thus speaketh:

Tolere nodosam nescit medicina podagram.

Phyicke cannot the knotty Goute to heale.

Lib. 3. sect. 22.
tract. 2. cap. 3.

Lib. de ther.
ad Pisonem 6. 15.

The matter of
the gout par-
takes of occult
malignity.

These reasons have induced many to believe that the essence of this disease is unknowne, for there is a certaine occult and inexplicable virulency, the author of so great malignity and contumacy. Which *Avicen* seemes to acknowledge, when hee writes that there is a certaine kinde of Goute whose matter is so acute and maligne, that if it at any time bee augmented by the force of anger, it may suffice to kill the party by suddaine death. Therefore *Galen* himselfe writes that Treacle must bee used in all Arthriticall and gouty affects, and as I think, for no other reason, than for that it dries, wastes and weakens the malignity thereof. *Gordonius* is of the same opinion, but addeth withall, that the body must be prepared and purged before wee use Treacle. Therefore the matter of the gout is a thin and virulent humour, yet not contagious, offending in quality rather than quantity, causing extreme paines, and therefore instigating the humours together with the caliginous and flatulent spirits prepared or ready for defluxion upon the affected parts. Therefore as the bitings of Aspes, and stings of Wasps cause cruell pain with sudden swelling and blistering, which is by the heat of the humours which the poyson hath tainted, and not by the simple solution of continuity, seeing that we daily see Shoo-makers and Taylors pricking their flesh with aules and needles without having any such symptome. Thus the virulencie of the gout causeth intolerable tormenting paine, not by the abundance, because it happens to many who have the gout, no signe of defluxion appearing in the joints, but onely by a maligne and inexplicable quality, by reason whereof these paines doe not cease unlesse abated by the helpe of medicines, or nature, or both. The recitall of the following histories will give much light to that unexpli-
cable

cable and virulent malignity of the matter causing the gout. Whilest King Charles the ninth, of happy memory, was at Burdeaux, there was brought to *Chappellaine* and *Castellan* the Kings Physicians, and *Taste* a Physician of Burdeaux, *Nicholas Lambert* and my selfe Surgeons, a certaine Gentlewoman some forty yeares old, exceedingly troubled for many yeares by reason of a tumor scarce equalling the bignesse of a pease, on the outside of the joynt of the left Hippe: one of her tormenting fits tooke her in my presence; shee presently beganne to cry and roare, and rashly and violently to throw her body this way and that way, with motions and gestures above a womans, yea a mans nature. For shee thrust her head between her legges, laid her feet upon her shoulders, you would have said shee had beene possessed of the Divell. This fit held her some quarter of an houre, during all which time I heedfully observed whether the grieved part swelled any bigger than it was accustomed, whether there happened any new inflammation; but there was no alteration as farre as I could gather by sight or feeling, but onely that shee cryed out more loudly when as I touched it. The fit passed, a great heate tooke her, all her body ranne downe with sweat, with so great wearinesse and weakenesse of all her members, that shee could not so much as stirre her little finger. There could bee no suspicion of an Epileprick fit, for this woman all the time of her agony did perfectly make use of all her senses, did speake, discourse, and had no convulsion. Neither did shee spare any cost or diligence, whereby shee might bee cured of her disease by the helpe of Physicians, or famous Surgeons; she consulted also witches, wizzards and charmers, so that shee had left nothing unattempted, but all art was exceeded by the greatnesse of the disease. When I had shewed all these things at our consultation, wee all with one consent were of this opinion, to apply a potentiall Cautery to the grieved part, or the tumour. I my selfe applied it: after the fall of the Eschar very blacke and virulent *sanies* flowed out, which freed the woman of her paine and disease for ever after. Whence you may gather, that the cause of so great evill was a certaine venenate malignity, hurting rather by an unexplicable quality than quantity; which being overcome and evacuated by the Cautery, all paine absolutely ceased. Upon the like occasion, but on the right arme, the wife of the Queenes Coach-man at Amboise consulted *Chappellaine*, *Castellan* and me, earnestly craving ease of her paine, for shee was so grievously tormented by fits, that through impatiency, being carelesse of her selfe, shee endeavoured to cast her selfe headlong out of her chamber window, for feare whereof shee had a guard put upon her. Wee judged that the like monster was to be assaulted with the like weapon, neither were we deceived, for using a potentiall cautery, this had like successe as the former. Wherefore the bitterness of the paine of the gout is not occasioned by the onely weakenesse of the joints; for thus the paine should be continuall, and alwaies like it self; neither is it from the distemper of a simple humour, for no such thing happens in other tumours of what kinde soever they be of; but it proceeds from a venenate, maligne, occult and inexplicable quality of the matter: wherefore this disease stands in need of a diligent Physician and a painfull Surgeon.

A historie.

A terrible fit.

How an Epileprick fit differs from the gout.

CHAP. III.

Of the manifest causes of the Gout.

Although these things may be true which we have delivered of the occult cause of the gout, yet there be and are vulgarly assigned others, of which a probable reason may bee rendred, wherein this malignity whereof wee have spoken lies hid and is seated. Therefore as of many other diseases, so also of the gout there are assigned three causes; that is, the primitive, antecedent and conjunct; the primitive is twofold, one drawn from their first originall and their mothers wombe, which happens to such as are generated of gouty parents, chiefly if whilest they were conceived, this gouty matter did actually abound and fall upon the joynts. For the seed falls from all the parts of the body, as saith *Hippocrates*, and

The first primitive cause of the gout.

Lib. de aëre, loc. & aqua. Lib. 1. cap. 17.

Li 3. feu. 22. traçt.
2. cap. 5.
Another primi-
tive cause of
the gout.

Aph. 29. Sect. 6.

The antecedent
cause of the
gout.

The conjunct.

Five causes of
the paine of
the gout.

Aristotele affirms *lib. de gener. animal.* Yet this causes not an inevitable necessity of having the gout, for as many begot of sound and healthfull parents are taken by the gout by their proper & primary default; so many live free from this disease, whole fathers notwithstanding were troubled therewith. It is probable that they have this benefit and priviledge by the goodnesse of their mothers seed, and the laudible temper of the womb; wherof the one by the mixture & the other by the gentle heat, may amend and correct the faults of the paternall seed; for otherwise the disease would become hereditary, and gouty persons would necessarily generate gouty; for the seed followeth the temper and complexion of the party generating, as it is shew-
ed by *Avicen.* Another primitive cause is from unordinate diet, especially in the use of meat, drink, exercise and Venerie. Lastly by unprofitable humours which are generated and heaped up in the body, which in proceſſe of time acquire a virulent malignity; for these fill the head with vapours raised up from them, whence the membranes, nerves and tendons, and consequently the joynts become more laxe and weake. They offend in feeding who eat much meat, and that of sundry kinds at the same meale, who drink strong wine without any mixture, who sleep presently after meat, and which use not moderate exercises; for hence a plenitude, an obstruction of the vessels, crudities, and the encrease of excrements, especially serous. Which if they flow downe unto the joynts, without doubt they cause this disease; for the joints are weake either by nature or accident in comparison of the other parts of the body: by nature, as if they be loose and soft from their first originall; by accident, as by a blow, fall, hard travelling, running in the sun by day, in the cold by night, racking, too frequent venery, especially suddenly after meat; for thus the heat is dissolved by reason of the dissipation of the spirits caused in the effusion of seed, whence many crude humours, which by an unseasonable motion are sent into the sinews & joints. Through this occasion old men, because their native heat is the more weak, are commonly troubled with the gout. Besides also the suppression of excrements accustomed to be avoided at certaine times, as the courses, hæmorrhoides, vomit, scowring, causeth this disease. Hence it is, that in the opinion of *Hippocrates*, A woman is not troubled with the gout, unlesse her courses faile her. They are in the same case who have old and running ulcers suddenly healed, or *varices* cut and healed, unlesse by a strict course of diet they hinder the generation and increase of accustomed excrements. Also those which recover of great and long diseases, unlesse they be fully and perfectly purged, either by nature or art, these humours falling into the joynts, which are the relicks of the disease, make them to become goutie; and thus much for the primitive cause. The internall or antecedent cause is, the abundance of humours, the largenesse of the vessels and passages which run to the joynts, the strength of the amandating bowels, the loosenesse, softnesse and imbecility of the receiving joints. The conjunct cause is the humour it selfe impacted and shut up in the capacities and cavities of the joynts. Now the unprofitable humour, on every side sent downe by the strength of the expulsive faculty, sooner lingers about the joynts, for that they are of a cold nature and dense, so that once impacted in that place, it cannot be easily digested and resolved. This humour then causeth paine by reason of distension or solution of continuïty, distemper, and besides the virulency and malignity which it acquires. But it favours of the nature sometimes of one, sometimes of more humors; whence the gout is either phlegmonous, or erysipilatus, œdematous, or mixt. The concurrence of flatulencies, together with the flowing down humours, and as it were tumult by the hinderance of transpiration, encreaseth the dolorifick distension in the membranes, tendons, ligaments and other bodies wherein the joint consists.

CHAP. IV.

Out of what part the matter of the Gout may flow downe upon the joints.



THE matter of the gout commeth for the most part from the liver, or brain; that which descends from the braine is phlegmatick, serous, thin and cleare, such as usually drops out of the nose, endued with a maligne and venenate quality. Now it passeth out by the musculous skin and *pericranium*, as also through that large hole by which the spinall marrow, the braines substitute, is propagated into the spine, by the coats and tendons of the nerves into the spaces of the joints, and it is commonly cold. That which proceeds from the liver is diffused by the great veine and arteries filled and puffed up, and participates of the nature of the foure humours, of which the masse of the blood consists, more frequently accompanied with a hot distemper, together with a gouty malignity. Besides this manner of the gout which is caused by defluxion, there is another which is by congestion; as when the too weak digestive faculty of the joints cannot assimilate the juices sent to them.

What and how the matter of the gout comes downe from the braine.

Gout by congestion.

CHAP. V.

The signes of the arthritick humour flowing from the braine.



When the defluxion is at hand, there is a heaviness of the head, a desire to rest, and a dulness with the paine of the outer parts, then chiefly perceptible, when the hairs are turned up, or backwards; moreover, the musculous skin of the head is puffed up as swolne with a certain oedematous tumour; the patients, seem to be much different from themselves by reason of the functions of the minde hurt by the malignity of the humour, from whence the naturall faculties are not free; as the crudities of the stomach; and the frequent and acride belchings may testifie.

CHAP. VI.

The signes of a gouty humour proceeding from the liver.



THE right Hypochondrie is hot in such gouty persons, yea the inner parts are much heated by the bowell; blood and choler carry the sway, the veins are large and swoln, a defluxion suddenly falls down, especially if there be a greater quantity of choler than of other humours in the masse of the blood. But if, as it often falls out, the whole blood, by meanes of crudities degenerate into phlegme and a wheyish humour; then will it come to passe, that the gout also, which proceeds from the liver, may be pituitous or phlegmatick, and participate of the nature of an *œdema*, like that which proceeds from the braine. As if the same masse of blood decline towards melancholy, the gout which thence ariseth resembles the nature of a *scirrhus*; yet that can scarce happen, that melancholy by reason of the thicknesse and slownesse to motion may fall upon the joynts. Yet notwithstanding, because we speake of that which may bee of these, it will not bee unprofitable briefly to distinguish the signes of each humour, and the differences of gouts to be deduced from thence.

When the gout which proceeds from the default of the liver, assimilates the nature of an *œdema*.

Why the gout seldome proceeds from melancholy.

CHAP. VII.

By what signes we may understand this or that humour to accompany the gouty malignity.

YOU may give a guesse hereat by the patients age, temper, season of the yeare, condition of the country where he lives, his diet and condition of life, the encrease of the paine in the morning, noone, evening or night, by the propriety of the beating, pricking, sharpe or dull paine; by numbness, as in a melancholy gout or itching; as in that which is caused by rough phlegme, by the sensible appearance of the part in shape and colour (as for example take in a phlegmaticke gout, the colour of the affected part is very little changed from its selfe, and the neighbouring well parts, in a sanguine gout it lookes red, in a cholerick it is fiery or pale, in a melancholy livid or blackish) by the heat and bignesse which is greater in a sanguine and phlegmatick than in the rest, by the change, and lastly by things helping and hurting. And there bee some, who for the knowledge of these differences wish us to view the patients urine, and feele their pulse, and consider these excrements which in each particular nature are accustomed to abound or flow, and are now suddenly and unaccustomarily suppress. For hence may be taken the signes of the dominion of this or that humour. But a more ample knowledge of these things may be drawne from the humours predominant in each person, and the signes of tumours formerly delivered. Onely this is to be noted by the way, that the gout which is caused by melancholy is rare to be found.

CHAP. VIII.

Prognosticks in the Gout.

BY the writings of Physitians the paines of the gout are accounted amongst the most grievous and acute; so that through vehemency of pain many are almost mad, and wish themselves dead. They have certain periods and fits according to the matter and condition of the humour wherein this malignant and inexplicable gouty virulency resides. Yet they more frequently invade in the Spring and Autumne; such as have it hereditarie are scarce ever thoroughly free therefrom, as neither such as have it knotty: for in the former it was borne with them, and implanted, and as it were fixed in the originall of life: but in the other the matter is become plaister-like, so that it can neither be resolved nor ripened: that which proceeds from a cold and pituitous matter, causeth not such cruell tormenting pain, as that which is of a hot, sanguine or cholerick cause, neither is it so speedily healed, for that the hot and thin matter is more readily dissolved; therefore commonly it ceaseth not untill forty dayes bee past: besides also, by how much the substance of the affected part is more dense, and the expulsive facultie more weake, by so much the paine is more tedious. Hence it is, that those gouty paines which molest the knee, heele and huckle bone, are more contumacious. The gout which proceeds of a hot matter, rests not before the fourteenth or twentieth day. That which is occasioned by acride choler, by the bitterness of the inflammation and pain causeth a difficulty of breathing, raving, and sundry times a gangrene of the affected part, and lastly death; and healed, it often leaves a palse behind it. Amongst all the gouty paines, the Sciatica challengeth the prime place, by the greatnesse of the paine and multitude of symptomes; it brings unquietnesse and watching, a feaver, dislocation, perpetuall lamenesse & the decay of the whole legge, yea and often times of the whole body. Now lamenesse, and leannesse or decay of the part are thus occasioned, for that the decurrent humour forceth the head of the thigh-bone out of the cavity of the huckle-bone; this being forced out presseth the muscles, veines, arteries, and that notable and large nerve which runs alongst the

The gout frequent in the Spring & Fall. What gout incurable.

Gal ad aphor. 49. Sect. 6.

Why the Sciatica causeth lamenesse.

the thigh even to the furthest joynts of the toes, and by the way is diversly dispersed over the muscles of the whole leg. Therefore because the head of the thigh is put out of its place, the patient is forced to halt; because the vessels and nerves are oppressed, the nourishment and spirits doe not freely flow into the parts thereunder, whence proceeds their decay. Yet it sundry times happens, that the head of the thigh being not displaced, many halt because the viscid humour, which is naturally implanted in that place and continually flowes thither, both for the nutrition of these parts, and the lubrication of the joynt for quicker motion, is hardened by heat and idlenesse, and the other unprofitable humours which flow downe do there concreate, and so intercept the liberty of motion. A grosse and viscid humour into what joint soever it falleth and stayeth, doth the same. For by concretion it turnes into a plaister like nature at or neare the joynt, possessing the cavities thereof, and it depraveth the figure of the part, making it crooked and knotted, which formerly was streight and smooth. Furthermore every distemperature caused by the defluxion of humours, if it shall lye long upon any part, depraves all the actions, and oft-times wholly abolisheth them; so that there may bee three causes of the leanenesse or decay of the joint by the gout, the obstruction or compression of the vessels, idlenesse and a hectick distemper: but two of lamenesse, dislocation and the concretion of an adventitious humour impact in the joynt. If contrary to custome and reason the paines of the gout doe not goe away or returne at their accustomed periods, most grievous and dangerous diseases thereon follow; for the matter accustomed to flow downe into the joints, if it seaze upon the substance of the liver, causes a Phlegmon; if it stay in the larger veines, a continuall feaver; if it flow into the membrane investing the ribs, a Pleurisie; if it betake it selfe to the guts and adhere to their coats, the Collick or *Illiaca passio*; and to conclude, it produceth divers other symptomes, according to the diversity of the parts whereto it flowes and abides. For thus sundry that have beene troubled with the gout, become paralitick, because the matter which formerly flowed downe into the joints, staves in the substance and pores of the nerves, and so hinders the spirit that it cannot freely in its whole substance passe through them: hence therefore comes the resolution of the part, whereinto the nerve is inserted. Old men can never be quite or absolutely cured of the gout, for that the masse of their blood is so departed from its primary & native goodnesse, that it can no more bee restored, than dead or fowred wine. The gout which proceeds from a cold cause, invadeth slowly and by little and little, and is helped by the use of hot things; that which is from a hot matter, quickly shewes it selfe, and is helped by the use of cold things. Now, although the gout more frequently returnes in the spring and fall, yet it comes in the midst of winter, the nerves being weakened by the excesse of cold, and the humours pressed out; otherwhiles in the midst of summer, the same being diffused and dissipated. Lastly, it comes at any time or season of the year, if those who are subject to this disease feed plenteously, and do all things according to their owne mindes and desire. Those who are troubled with the gout, feeble and perceive change of weather, stormes, raines, snowes, windes and such like, before they come. A southerly constitution of the aire, for example, fills the body with humidities, and stirs up the humours that lye quiet in the body, and therefore cause defluxions upon the weaker parts, such as the joints, both by nature, as being without blood and flesh, as also by accident, for that they a long time have been accustomed to bee so tormented; therefore their paines are increased in a wet season. Many of these that are troubled with the gout, desire venery in the bitterness of their paine, because the internall heat wherewith they then are inflamed doth not dissipate into spirits and aire, as the feaverish heat doth, but dissolves, and as it were melts downe the feminall humour, which dissolved, flowes to the genitalls, filleth and distends them. The same thing befalls carriage and running horses, for in these by labour, much heat sends flatulencies to the bottome of the belly. Yet venery is very hurtfull to such as are troubled with the gout, because it dissipates the spirits and native heate, and encreaseth the unnaturall heat; whereby it commeth to passe that the nervous parts are weakened, and the paine exasperated. Rich men, that is, such as feed riotously on variety of dainties, and in the meane space live idly and lazily

Three causes of the lamenesse or decay of the limbes.

How the gout turnes into the palse.

Why the gout takes one in winter and the midst of summer.

Why such as have the gout upon them, doe oft-times desire Venery.

Venery hurtfull in the gout.

are

are more frequently and cruelly tormented with the gout than poore people, who live sparingly and hardly : Wherefore there have been seene not a few of such rich and riotous persons, who having spent their estates, have therewith changed their health, together with their fortune and diet, and so have been wholly freed from the gout.

CHAP. IX.

The generall method of preventing and curing the Gout.



Those who desire to prevent the gout, must not glut themselves with meat, must be quick to labour, and abstaine from wine and Venery, or certainly must not use them, unlesse for their healths sake, must vomit and purge at certaine times. *Hippocrates* writes, that boyes are not troubled with the

Aph. 30. Sect. 6.

gout before the use of venery. Yet at this day many Eunuches are seene to have the gout, but especially those who abound with idlenesse and pleasure, yet these we have heretofore mentioned are very effectuell, not onely for the prevention, but also for the cure of the present disease. Yet wee must diligently distinguish the causes, what they be, & whence they may proceed, & oppose thereto remedies contrary in quantity and quality. There are absolutely three distinct causes of the gout ; A tainture from the parents ; a corruption of the humours by diet and aire ; a native, or adventitious weakenesse of the joints. Against these there is a twofold indication ; the first is the evacuation and alteration of the peccant humours, the other the strengthening of the weake joints. These two shall be performed by diet conveniently appointed, purging, blood-letting, provocation of the hæmorrhoids, courses, vomit, sweat, urine, and fit application of locall medicines. Therefore, when the time shall come, wherein the gout accustometh to returne by course, the patient shall have a care of himselfe by a diligent manner of diet, hee shall lessen the matter of the disease by phlebotomie (if that the gout shall arise from the blood) from the opposite part, that by the same meanes revulsion and evacuation may bee made ; as if the upper parts bee inflamed, blood shall bee drawne from the lower ; if on the contrary the lower, out of the upper, alwayes observing the streightnesse of the fibres. Thus the right arme being troubled with a gouty inflammation, the *Saphena* of the right legge shall bee opened, and so on the contrary ; but if this generall blood-letting being premised, the paine shall not cease, it will be requisite to open the veine next to the paine, which I have often performed with happy successe.

Two generall
scopes of curing
the gout.

Whence blood
must be let in
the gout.

What gouty
persons find no
benefit by phle-
botomy.

In what gout di-
et proves more
effectuall than
medicines.

Aphor. 55. Sect. 6.

Yet phlebotomie hath not the like effect in all, for it is not availeable to such as are continually and uncertainly troubled with gouty paines, or whose bodies are weake and cold, wherein phlegme onely is predominant. Wee may say the same of purging, for though it bee oft-times necessary, yet too frequently re-iterated, it proves hurtfull ; furthermore, neither of these remedies is usually very profitable to such as observe no order in meate and drinke, which use Venery too intemperately, who abound with crude and contumacious humours ; whose joynts by long vexation of the disease, have contracted a hestick distemper and weakenesse, so that they are departed from their naturall constitution, and suffered a great change of their proper substance. Wherefore as often as these greater remedies shall be used, a Physician shall be called, who according to his judgement may determine thereof. For oft-times diet proveth more availeable than medicines : therefore the Patient (if the matter of the gout bee hot) shall either drinke no wine at all, or else very much allayed, that is, as much as his custome and the constitution of his stomacke can endure. A fit time for purging and bleeding is the Spring and Autumne, because, according to the opinion of *Hippocrates*, gouts reigne chiefly in these seasons ; in Autumne, for that the heate of the precedent Summer debilitateth the digestive faculty, the native heate being dissipated : as also the eating of Summer fruits hath heaped up plenty of crude humours in the body, which easily flow downe into the passages of the joynts opened and dilated by the Summers heate :

adde

adde hereunto that the inequality or variableness of Autumne weakeneth all the nervous parts, and consequently the joynts. But in the Spring, for that the humours forced inwards by the coldness of the winter, are drawn forth from the center to the circumference of the body, and being attenuated, fall into the joints upon a very small occasion. Therefore there is great both necessity and opportunity for evacuation, which if it shall not avert the accustomed fit, yet it will make it more gentle and easie.

CHAP. X.

Of Vomiting.

Vomiting is by all the Ancients exceedingly commended, not onely for the prevention, but also for the cure, especially when as the matter floweth from the braine and stomacke; for the phlegmatick, serous and cholericke humours, which usually flow from the joints, are excluded and diverted by vomit, and also there is attenuation of that phlegme, which being more thicke and viscid, adhereth to the roots of the stomach: yet you must consider and see that the patient bee not of too weake a stomacke and braine, for in this case vomiting is to bee suspected. For the time, such as have excrementitious humours flowing downe to the stomach through any occasion, as by exercise and motion, must vomit before they eate; on the contrary, such as are overcharged with an old congestion of humours, must vomit after they have eaten something. Certainly it is safer vomiting after meat, then it is before. For the dry stomacke cannot, unlesse with great contention and straining, free it selfe from the viscid humours impt in the coats thereof; and hence there is no small danger of breaking a veine or artery in the Chest or Lungs, especially if the patient bee strait chested, and long necked, the season cold, and hee unaccustomed to such evacuation. I remember that with this kind of remedy I cured a certaine Gentleman of Geneva, grievously molested with a cruell pain in his shoulder, and thereby impotent to use his left arme; the Physicians and Surgeons of Lions seemed to omit nothing else for his cure. For they had used purging, phlebotomic, hunger, a Diet drinke of *Gudracum* and *China* (although his disease was not occasioned by the *Lues Venerea*) and divers other topick medicines, neither yet did they any thing availe. Now learning by him that hee was not apt to vomit, but that it was difficult to him, I wished him to feed more plentifully, & that of many & sundry meats, as fat meat, onions, leeks; with sundry drinks, as beare, prisan, sweet and sharpe wine, and that hee should as it were overcharge his stomach at this meal, and presently after get him to his bed; for so it would happen, that nature not enduring so great confusion & perturbation of meats & drinks, wherof some were corrupted already in the stomach, & other some scarce altered at all, nature not enduring this confusion and perturbation, would easily and of its owne accord provoke the stomach to vomit; which that it might the better succeed, he should helpe forward natures endeavour, by thrusting his finger or a feather into his throat, that so the thick and tenacious phlegme might by the same meanes be evacuated: and not content to doe thus once, I wished him to doe the like the second & third day following, for so it verifieth that saying of *Hippocrates*: The second and third day exclude the reliques of the first: afterwards, that hee should vomit twice a moneth: chaw mastick fasting: rub his necke and the pained part with *aqua vita*, strengthened by infusing therein lavender, rosemary, and cloves grossly beaten: confirme his arme by indifferent exercise: hee performed all this, and so became free from his paine, and recovered the use of his arme. Those who do not like such plentiful feeding, shall drink a great quantity of warm water wherein radish roots have been boiled, and they shall have a care lest by using their stomachs to this excretion by vomit they weaken the digestive and retentive faculty thereof. Wherefore such as can naturally, shall thinke it sufficient to vomit twice a moneth.

To what gout vomiting is to be used.

What time the fittest therefore.

A history.

How to make one vomit easily.

Lib. de yst. vitiis.

CHAP. XI.

The other generall remedies for the Gout.

How Diure-
ticks are good
for the gout.

Issues or fon-
tanel.

Where to be
made.

An actuall
cautery.

Pills.

Common pills
with the addi-
tion of scamo-
ny.

Treacle, how
usefull in the
gout.

Cephalick fu-
migation.



He defluxion of serous humours is very fitly diverted from the joints by the urine by the use of diureticke medicines. Therefore the roots of Sorrell, parfly, *ruscus*, *asparagus*, and grasse, and the like, shall bee boyled in broth, and given to such as have the gout: for when the urine floweth much and thick, the paine is lessened. Many have found benefit by issues, for the Arthritick malignity flowes forth of these, as by rivelets: experience shewes it in such as are troubled with the *Lues Venerea*, for in those that you cannot overcome the malignity by the proper antidote, that is, Quicksilver, they feele no greater ease of the pain, than by application of Causticks, and making of issues. They shall bee made in sundry places according to the difference of the pained joints, to wit, in the beginning of the neck, if the defluxion proceed from the braine, and fall into the joints of the Collar-bones or shoulder; if into the Elbow or hand, under the muscle *Epomis*; if into the hip, knees, and feete, some three fingers breadth under the knee, on the inside: for thus there will follow more plentifull evacuation, by reason that the *Sapheia* runneth downe that way. Yet if the patient bee troubled with much businesse, and must travell much on horse-back, then shall they be made on the outside of the legge, betweene the two bones thereof, that so they may trouble him the lesse in riding. If any had rather use an actuall cautery, let him take such an one as is triangular and sharpe, that so hee may with more speed and lesse paine performe that which hee intends, and let him thrust it through a plate of iron which hath a hole therein, and let the place bee marked lest hee should erre; the ulcer shall be kept open by putting in a pill of gold, silver, lint, of the root of orris, hermodactiles, gentian, waxe, wherewith some poudre of vitrioll, mercurie or allum shall be incorporated, lest it should fill up with flesh sooner than the Physician shall thinke fit. In the meane space, the head, oft-times the originall of the evill, shall be evacuated by taking in the winter the pills *cochia*, and *de Assajereth*; but in summer *sine quibus*, or *Imperiales*, before the Full of the Moone. *Rx. pul. hyera simp. ʒi. agar. recent. troch. & rbei an. ʒii. myroball. chebul. ʒʒ. tamarind. ʒii. cum infusione sene, fiat massa de qua formentur pill. vi. pro drachma*; let the patient take two before supper every eighth day; the day after he shall drinke some broth of the decoction of Cicers and the Diureticke roots. Also these following pills will bee good to purge the phlegmaticke and serous humour. *Rx. pilular. fetid. & de hermodactil. an. ʒʒ. formentur cum succo vel syrup. rosar. solut.* Or else, *Rx. alces. ʒiii. agarici trochisf. & rbei, an. ʒi. massa pilul. arthrit. & de hermodact. an. ʒii. diacrid. ʒi. cum melle rosato fiat massa, capiat pondus, ʒi.* as the Physician shall thinke fit, by whose advice these shall be used and changed as occasion shall offer it self, and the nature of the humour causing the disease. The day after the purging, the patient shall take three houres before meat half a dram of Treacle, to strengthen the entrailes: pills are preferred before liquid medicines, for that by their long stay in the stomack they easily attract the noxious humor from the brain, & the other more distant parts. I have known some Physicians who mixing with ordinary pills a good quantity of scamony, as 7. or 8. grains, with a little ginger, lest it should hurt the stomack, have purged by stool a great quantity of serous humours; the day following they gave barley cream to correct the harme which the scamonie may have done to the stomacke. Others for the same purpose give treacle, which doth not onely strengthen the entrailes, but also weakens the virulencie of the gouty malignity; the orifice of the ventricle must be shut after meate, that so the vapours ascending to the braine may bee restrained: for this purpose common Drige powder, Marmelate, or conserve of roses are good. In a wet season use Cephalicke perfumes thus made. *Rx. thuris, vernicis, & mastich. an. ʒi. granorum juniperi, baccarum lauri, an. ʒʒ. ligni aloës ʒii. assa odorata ʒi. ʒ. I.* let them bee grossly beaten; let the fume be received in tow or carded Cotton, and so applied to the head. Also the excrementitious humours shall bee dried up by the following powder strowed on the patients head for fiftene dayes. *Rx. fol. ros. rub. sene, stachad. utriusque an. m. ʒ. milii, ʒiii. furfuris loti in vino albo, ʒiii. florum chamem. melil.*

melil. an. p i. sem. anis, 3 i. salis com. 3 ii. fiat omnium pulvis. Let it be put into linnen bagges, with which, being warmed at the fire in a frying-pan, and kept with stirring, the head shall bee rubbed. Let the following medicine bee chewed, and kept in the mouth in the forme of a masticatory, in the time of the falling downe of the defluxion. *R. cubelarum, nucis moschat. glycyrrhiz. anis. an. 3 i. pyrethri, 3 ii. mastich. rad. staphisagr. eryngii, an. 3 ii.* Let them all be made into powder, and mixed together, & tyed up in a little taffaty to the bignesse of a hassell nut, and let them be rowled up and downe the mouth with the tongue to cause spitting or salivation. Working with the hands, and frictions of the armes, especially in the morning after the evacuation of the excrements, are good for such as are troubled with the Gout in the feet, for so, it not onely causeth revulsion from the feet, but also the resolution of that which is unprofitable.

Cephalicke bagges

A masticatory.

CHAP. XII.

What Diet is convenient for such as have the Goute.

AFTER the body is once fed, they must not returne to meat before that the concoction be perfected in the stomacke, lest the liver be forced to draw by the mesaraicke veines that which is yet crude and ill digested, and as it were forced thence. Whence the depravation of the nutriment of the whole body; for the following decoctions doe not amend the default of the first. Let them make choice of meate of good juice and easie digestion, roasted for such as are phlegmaticke, but boiled for such as are cholericke: as they shall shun much variety at one meale, so must they eschew the use of pulses, milk-meats, sallads, and sharpe things, as verjuice, vinegar, the juice of oranges, and citrons. They shall not eat unlesse they be hungry, and shall desist therefrom before they be fully satisfied, if it be but for this, that whilst the native heat is busied in the digestion of meat plenteously eaten, it is diverted from the concoction of the noxious humors. The flesh of great fowle, as swans, cranes, peacocks are not of laudible juice, and are with more difficulty digested in the stomacke. Some of the antients have disallowed of the eating of Capons, and the like birds, because they are subject to bee troubled with the Goute in the feete. Fishes are to be shunned, for that they heape up excrementitious humours, and are easily corrupted in the stomacke, yea & relaxe it by continuall use. Of the flesh of beasts veale is most to be commended, for that it breeds temperate blood, and laudible juice, and is easily digested. Neither in the meane time is mutton to bee found fault withall. But the like hunger or abstinence must not be appointed to all men troubled with the Goute, for such as are of a sanguine and cholericke complexion, because they are endued with much, and much wasting heate, are to be refreshed with more plentifull nourishment; for hunger sharpenes choler, and so augments their paines; neither in the interim must they bee fed with too moist meates, for too much moisture, besides that it is the author of putrefaction, will cause defluxions, and draw downe the matter to the joints. Therefore the Cholericke humor must bee incrassated and refrigerated by taking things inwardly, and applying things outwardly, lest by its tenuity it should fall downe into the grieved parts. To this purpose conduce brothes altered with lettuce, purslaine, sorrell, and the like herbs, and barley creames made with a decoction of the foure cold seeds. Phlegmaticke bodies, by reason that they have not so vigorous heate, doe as it were carry their provant about them, wherefore they must not be fed, neither with many nor with moist meates. All that are troubled with the Goute must shun those things which are hard of digestion, and which are soone corrupted, for they all have a certain remiss feaver which diminisheth the native heat, & makes the meates apt to putrefie. Too plentifull drinking not onely of wine, but also of any other liquor is to be avoided. For by too great a quantity of moisture the meat floats in the stomacke, and the native heat is in some sort extinguished, whence proceed crudities. Some physitians commend the use of white wine, for that it provokes

The fault of the first concoction, is not amended in the after.

Capons subject to the Gout.

Cholericke persons cannot away with long fasting.

Phlegmaticke bodies in fasting feed upon themselves.

White wine not
good for the
gout.

Claret may be
the safest
drinke.

Hydromel most
safely.

A hydrosucha-
rum.

vokes urine, which is not altogether to be disallowed if so be that the body bee free from excrements, otherwise by this, as it were a vehicle, especially if the temperature of the body be somewhat more hot, they shall be carryed down into the joints. Therefore in such a case I should rather advise them to use claret, which is somewhat weake and astringent, for that it doth not so much offend the head nor joints, and it shuts and strengthens the orifices of the vessels. Yet it will bee more convenient wholly to abstaine therefrom, and in stead thereof to drinke a *Hydromel* made after this manner. *Rx. aqua lb. iiii. mellis opt. q. i. bulliant ad consumptionem lb. i. bene despumando, adde ad finem, salvia p. i. imo si ager sit pituitosus, cinamomi aut caryophyllorum momentum.* For cholerike persons make a sugred water thus. *Rx. aqua fontis lb. iiii. sacchari lb. ss. colentur per manicam sine ebullitione, addendo in fine cinamomi ʒ. ii.* For thus the stomacke shall also be strengthened; also he may drinke *ptisan*, wherein at the end of the decoction shall bee boiled some dried roses, or else some syrupe of pomegranates added thereto, lest it should offend the stomack; as soone as it comes from off the fire, let it stand and settle, and then straine it through an Hippocras bag, or cleane linnen cloath.

CHAP. XIII.

How to strengthen the Joints.



It is a matter of much consequence for the prevention of this evil, to strengthen the joints, whereby they may be able to resist the humors preternaturally falling downe upon them. Wherefore it is good morning and evening to rubbe them with *Oleum Omphacinum*, that is, oile made of olives not come to their perfect maturitie; or with oile of roses mixed with common salt finely powdered. It may also bee mixed with common oile, adding thereto

A fomentation
to strengthen
the joints.

The juice of
hawes with oxy-
crate.

Bagges.

the powder of harts horne, as that which hath an astringent and drying faculty. Also it is good to bath them in this following Lye. *Rx. cort. granat. nucum cupress. gallarum. sumach. cortic. querni, an. ʒ. ii. salis com. alumin. roch. an. ʒ. i. salvia, rorismar. lavendul. lauri, iwa arthretic. an. m. i. rosar. rub. m. ss. bulliant omnia in sex lb. vini crassi & astringentis & lixivio parato ex aqua chalibeata & cinere querno.* Then foment the part with sponges or cotton clothes; after this fomentation shall be carefully wiped & dried with hot linnen clothes, taking heed of cold. The juice of unripe Hawes tempered with oxycrate is a singular thing for this purpose. But if you desire to strengthen the joints weakened by a cold cause, then, *Rx. salvia, rorismar. thymi, lavendul. laur. absinth. an. m. i. caryophyl. Zinzib. piperis, conqassatorum an. ʒ. i. infundantur in aqua vita & vini rubri astringentis, an. lb. iiii. bulliant leniter in balneo maria.* With this liquor foment the joints morning and evening. Somethinke it good to strengthen the joynts, to tread grapes in vintage time, which if they be not able to doe, then let them wash their feete in the Muste or new pressed Wine. Also bagges may be thus made for the same purpose. *Rx. salis com. alum. roch. cort. granat. sumach. berberis, nucum cupressi, an. ʒ. iiii. fol. salvia, rorismar. rosar. rub. an. m. ss.* Let them be all put in linnen bags and boyled in Lye, and so make a decoction for to foment the joynts.

CHAP. XIII.

Of the Palliative Cure of the Goute and the materiall causes thereof.



HERE also must we consider the causes whence this disease proceeds, the temper of the diseased body, the parts affected, & those from whence it proceeds. For as these are not alwayes alike, so neither can one and the like remedy be usefull in every Goute. For first those which proceed of a cold cause require other remedies, than those which arise from a hot, and that which proceeds from any one simple humour, than that which ariseth from divers mixed together. For Choler alone causeth cruell paines, but tempered by the admixture of Phlegme, it becomes more gentle. Furthermore some remedies are good in the beginning, some in the encrease, and some at other times. Neither may we use repercussives in the Sciatica, as we may in the Goute of the feet and other joints; unlesse peradventure the part be fearefully enflamed. Taking these things to consideration we must observe that the Palliative cure of that Gout, which cannot absolutely be helped, as that which is hereditary and inveterate, is performed by foure scopes. The first is, by appointing a convenient diet in the fixe things which are termed not naturall. The second by evacuating and diverting the antecedent matter, both by purging and phlebotomy. The third, by applying topicke medicines according to the condition of the morbidicke humour and nature of the part. The fourth, by correcting the symptomes, but especially the paine, whereof in these affects there is oft times so great excesse by reason of the unexplicable and invincible malignity of the virulent quality associating the humour, that it alone is oft times sufficient to kill the patient. And because the variety of morbidicke causes, brings a variety of remedies, fitted to these foure intentions, therefore it behoves a physitian to be most attentive in the distinction of the causes. For he may be easily deceived and mistake one for another; for arthritick pains proceeding from a cold matter, if they be mitigated by the application of Narcoticke and cold medicines, it may induce us to beleve that the materiall cause is hot, though really it bee not so; for Narcoticks assuage paine, not for that they are contrary to the cause thereof, but because they take away the sense by inducing a numnesse; on the contrary, the materiall cause may sometimes seeme cold, which notwithstanding is hot, for that it becoms better by application of hot medicines, that is, by taking an argument from that which helps, because contraries are cured by contraries, and the like preserved by the like. But herein consists the error, for that hot medicines profit not by their contrariety, but by the attenuation of the grosse matter, by the rarefaction of the skin and dissipating them into aire. Whence you may gather that an argument drawne from that which helps and hurts, is very deceitfull: moreover it may happen that a large quantity of cold matter flowing down from the brain, may cause great pain by reason of the virulency, & a small quantity of choler mixed therewith, which serves for a vehicle to carry down the tough and slow phlegme into the joints, whence the patient becomes thirsty and feavourish by reason of the heate and inflammation of these parts, whereby such as are lesse cautelous and heedy will easily be induced to beleve that some hot matter is the occasion of this Gout. Now when as not some one simple humour, but different by reason of mixture, causeth the Gout, the yellowish colour of the part may deceive one, as, if the evill matter should proceed from choler onely, which by the tenuity of its substance leaving the center, easily possesseth the circumference of the body or part: & notwithstanding much phlegm being as it were enraged by the admixtion of a little choler, may be the chiefe cause of the disease, and may peradventure be discovered by the encrease of paine in the night season. A feaver arising by meanes of paine and watching may encrease the conceived opinion of choler, which attenuating and diffusing the humours, drives them into the joynts, and causeth fiery urines, tintured with much choller, and a quicke pulse. Yet notwithstanding the Physitian shall be in error, if deceived with these appearances, he attempt the cure of this Gout, as arising from a hot, and not from a cold cause: yet I am not ignorant that the cure of the proper disease must be neglected

The scopes of curing

Repercussives not to be used in the Sciatica. The palliative cure performed by foure scopes.

An argument taken from that which helpeth, or giveth ease, is not alwaies certaine. How cold diseases may be helped by cold, and hot by hot medicines. The first thing that may deceive a Physician.

The second.

The third.

The fourth.

The first.

The first.

Why strong
purges must bee
given to such
as have the
gout.

That judge-
ment most cer-
tain which rests
upon multipli-
city of signes.

Why we must
use purging
and bleeding in
the gout.

*Lib. de affect. ubi
de Arthrit. loqui-
tur.*

*Ad aph. 23.
sect. 1.*

*Lib. de cur. per
jang. missionem.*

neglected for the cure of the symptoms. Besides also it may come to passe, that cho-
ler may be the cause of the Gout, and notwithstanding no signes thereof may appeare
in the skin, and surface of the affected part, because the coldness of the ambient aire,
and the force of applyed Narcoticks may have destroyed the colour of the juices ly-
ing therunder, and as it were imprinted a certain blacknesse. It also happens, that the
body being overcharged with a great quantity of grosse and viscid humours, the
expulsive faculty may discharge some portion thereof unto the joints, but leave the
rest impacted in the cavity of some entraile, where causing obstruction and putrefacti-
on may presently cause a feaver, and that intermitting, if it be small, & obstruct only
the lesser veins, & these of the habit of the body. Wherefore then it is not sufficient
that the Physitian employ himselfe in the cure of the Gout, but it behoves him much
more to attend the cure of the feaver, which if it bee continuall, it discredits the
physitian, and endangers the patient; if it bee intermitting, it easily becomes conti-
nuall, unlesse it be withstood with fit remedies, that is, unlesse you let blood, the bel-
ly being first gently purged, and nature be presently freed by a stronger purge of the
troublesome burden of the humours. Now it is convenient the purge be somewhat
stronger than ordinary, for if it should bee too weake, it will stir up the humors, but
not carry them away, & they thus agitated will fall into the pained and weak joints,
and cause the Gout to encrease. By this it appeares how deceitfull that conjecture is,
which relies & is grounded on one signe, as often as we must pronounce judgement
of morbidicke causes. Wherefore to conclude wee must thinke that opinion most
certaine concerning the matter of the disease, which is strengthened with multipli-
city of signes, as those which are drawne from the colour of the part, the heate or
coldnesse manifest to the touch, those things that helpe and hurt, the patients fami-
liar and usuall diet, temper, age, region, season of the yeare, propriety of paine, the
exacerbation or excess thereof, in what daies, & in what houres of the day, the length
of these fits, the urine and other excrements comming from the patients body. But
for that not a few are in that heresie, that they thinke that we must neither purge nor
let blood in the Gout, we must here convince that opinion. For seing that Physicke
is the addition of that which wants, and the taking away of those things that are su-
perfluous, and the Gout is a disease which hath its essence from the plenty of aboun-
ding humours, certainly without the evacuation of them by purging and bleeding,
wee cannot hope to cure, either it, or the paine which accompanies it. *Mesrius*, in
his Treatise of the Gout writes, that it must be cured by purging, used not onely in
the declination, but also in the height of the disease, which wee have found true by
experience; and it is consonant to this saying of *Hippocrates*; in paines wee must
purge by the stoole. Besides also, *Galen* professeth that in great inflammations, fea-
vers, and paines, he knew no greater nor surer remedy than to let blood, even to the
fainting of the patient. If those which are in this case shall not become better by pur-
ging and phlebotomy conveniently prescribed, then it happens by meanes of drun-
kennesse, gluttony, and the like distemper. For hence abundance of crude humors
are heaped up, which by their contumacy yeeld themselves lesse obedient to medi-
cines. Therefore such gouty persons as are intemperate and given to gluttony and
venery, may hope for no health by use of medicines.

CHAP. XV.

Of locall medicines which may be used to a cold Gout.

It is not safe to
use repercus-
sives in the gout
before purging.



Little doe topicke medicines availe, unlesse the body of the gouty
patient shall be purged from excrementitious humours; besides
also there is danger lest by the use of repelling medicines, the vi-
rulency of the humours may be driven into the entrailes, which
thing hath bin the cause of sodaine death to many. Now in the
first place we will speake of locall medicines which are thought
meet for a phlegmaticke juice, because this is more frequent, than that which is from
a hot.

a hot cause. At the beginning in every gout, the *sciatica* excepted, we must use astringent things which have a faculty to binde or strengthen the joints, and to dry and waste the excrementitious humour. As, R. *fol. sabinae* m. *℞. nucum cupressi* ʒiii. *aluminis roch.* ʒi. *gum. tragacantha* ʒiiii. *mucaginis psilii & cydon. quantum sufficit, fiat cataplasma.* Or, R. *stercoris bubuli recentis* ℔. i. *mellis ros.* ʒiiii. *olei ros. & aceti an.* ʒii. *bulliant simul parum, fiat cataplasma.* Or else, R. *olei rosar. & myrtill. an.* ʒii. *pulveris myrrhe & aloes an.* ʒi. *acacia* ʒi℔. *incorporentur cum aqua gallarum coctarum, & fiat unguentum.* Some boyle sage, camomile and melilote flowers, wormewood and dane-wort, of each a handfull in a sufficient quantity of vinegar, then they put the grieved part into this decoction being warme; & by frequent using this medicine, it hath bene found to repell and consume the noxious humour, not onely cold, but also cholericke; and also to strengthen the part. The fresh faces of Olives layd to the part, asswage paine: dried Oranges boiled in vinegar, beaten and applyed doe the same. Or, R. *medii corticis ulmi* ℔. *℞. cauda equin. stæchad. consolid. majoris, an.* m. *℞. aluminis roch. thuris an.* ʒiii. *farin. hordei* ʒv. *lixivii com. quantum sufficit, fiat cataplasma ad formam pultis satis liquida.* Commonly then when as the part swelleth up, the paine is lessened, for that the expulsive faculty driveth the humour from the center into the circumference of the part, that is, from within outwards; for in like sort, such as have the tooth ach have lesse paine when their cheekes begin to swell.

An astringent Cataplasme.

A discharging so-
mentation.

One partly a-
stringent and
partly discharg-
ing.

After reperculsives, we must come to those which evacuate the conteyned humour by evacuating or resolving it. For every defluxion of humours remaining in any part requires evacuation. Neither must we marvaile thereat, if the digested humour doth not vanish at the first time; for we must have regard to the cold phlegme which is thick and viscid, as also of the part which is ligamentous, membranous and nervous, and consequently more dense than fleshy parts. R. *rad. Bryon. sigilli beat. Mariæ an.* ʒiv. *bulliant in lixivio, postea terantur, & colentur per setaceum, addendo farin. hordei & fabarum an.* ʒi. *olei chamæm.* ʒiii. *fiat cataplasma.* Or, R. *farin. hordei & lupin. an.* ʒiii. *sulphuris vivi & salis com. an.* ʒi. *mellis com.* ʒv. *pul. aloës & myrrhæ an.* ʒ℔. *aq. vit.* ʒi. *cum lixivio fiat cataplasma.* Or, R. *succi caulium rub. aceti boni, an.* ʒiiii. *farin. hordei* ʒi℔. *pul. Hermodactyl.* ʒ℔. *vitellos ovorum nu.* iii. *olei chamæm.* ʒiii. *croci* ʒii. Some burne the roots and stalkes of colworts, and mixe the ashes with hogs greace and the powder of Orris, and so make a pultis. Or, R. *Lactis vaccini* ℔. ii. *mice panis alti quantum sufficit, bulliant simul, addendo pulveris subtilis florum chamæm. & meliloti an.* m. *℞. croci* ʒi. *vitellos ovorum nu.* iiiii. *ol. rosar.* ʒiii. *butyri recentis* ʒi. *terebinth.* ʒii. *fiat cataplasma ad formam pultis satis liquida.* This Cataplasme may be applyed with good successe, not only to phlegmatick & cold, but also to any gout, at any time to mitigate the extremity of the pain in men of any temper, and it must bee changed twice or thrice a day. Also Treacle dissolved in wine, and annoy ted on the part, is sayd to asswage this paine. You may for the same purpose make and apply emplasters, unguents, cerats and liniments: This may bee the forme of an emplaister. R. *gummi ammoniaci, bdellii, styracis, an.* ʒii. *cum aceto & aqua vit. dissolve, & adde farin. fænugr.* ʒ℔. *olei chamæm. & anethi, an.* ʒii. *cera quantum sufficit, fiat emplastrum molle.* Or, R. *rad. bryon. sigill. beat. Mariæ, an.* ʒv. *bulliant in lixivio completè, & colentur per setaceum, addendo olei chamæm.* ʒiiii. *sevi hircini* ʒiiii. *cera nov. quantum sufficit, fiat emplastrum molle.* Or, R. *gum. ammon. opopanacis galbani, an.* ʒii. *dissolvantur in aceto, postea colentur, adde olei liliorum, terebinth. venet. an.* ʒi. *picis navalis, & cer. nov. quantum sufficit, fiat emplastrum molle.* Or else, R. *succi rad. enul. camp. & ebuli an.* ʒiii. *rad. alth.* ℔. *℞. coquantur & colentur per setaceum, addendo florum chamæm. melil. sambuci, rorismar. & hyperici an.* p. ii. *nucum cupressi, nu.* iiiii. *ol. chamæm. aneth. hyper. liliorum, de spica an.* ʒii. *pinguedinis anatis, gallin. anseris an.* ʒ℔. *ranas virides vivas nu.* vi. *catellos duos super natos, bulliant omnia simul, in* ℔. ii. *℞. vini oderiferi, & unâ aqua vit. ad consumptionem succorum & vini, & osium catellorum dissolutionem, & fortiter exprimantur; expressioni adde terebinth.* ʒiii. *cer. quantum sufficit, fiat emplastrum molle.* Also, *Emp. de vigo. Oxicroceum, de mucilaginibus, de meliloto* and the like mixed together, and softened with a

Why the gouty
humour doth
not presently
vanish upon the
use of reper-
cussives.
Greater dis-
cussers.

A Cataplasme
good for any
gout at any
time.

Discharging em-
plaisters.

little oyle or *axungia*, are of the like faculty, and good for the same purpose.

Ointments.

Let this be the forme of an ointment. *Rx. anserem pinguem, & imple catellis duobus, de quibus deme cutem, viscera, caput & pedes; item accipe ranas nu. x. colubros detra- cta cute in frusta dissectos nu. iv. mitridat. & theriac. an. 3℔. fol. salvia, rorismar. thy- mi, ruta, an. m. ℔. baccarum lauri, & juniperi conquassat. an. 3i. pulveris nuc. moschat. ʒi. ʒib. caryophyl. & piper. an. 3i. de eo quod stillabat fiat unguentum vel linimentum cum cera & terebinth. veneta, pauca aqua vite addita; this marvelously asswageth the paine of the gout arising from a cold cause. Another, Rx. Gummi pini, & lodani, an. 3iv gummi elemi & picis naval. an. 3℔. terebinth. venet. clara 3vi. chamamel. & lilio- rum an. 3iv. vini rub. ℔. i. ℔. aq. vit. & salu. an. 3vi. dissolvantur omnia simul lento igne, baculo semper agitando, deinde adde pul. ireos, flor. baccarum lauri, & hermodactyl. and 3i. ℔. mastiches, myrrha & olibani an. 3ii. farina fabar. 3iv. incorporentur omnia si- mul, fiat unguentum molle. Or else, Rx. mucag. seminis fœnugr. in aceto extract. quan- tum volueris, cui misce mellis quantum sufficit; let them be boyled together untill they acquire the consistence of an ointment. These things shall be changed, as often as*

Discussing fo- mentations.

Remedies must be often chan- ged in the gout.

need shall seeme to require. Also anodine and discussing fomentations are good to resolve; as this, Rx. fol. ruta, salu. rorismar. an. m. i. bulliant cum aceto & vino; and so make a decoction for a fomentation, which you may use not only in a cold gout, but also in a hot, because it resolveth and strengtheneth the part by astriction, and freeth it from the defluxion: you must have a care that the medicines which are used to paines of the gout be changed now and then. For in this kinde of disease that re- medy which did good a little before, and now availeth, will in a short time become hurtfull.

A great dis- cussier.

An anodine.

But if the contumacy and excessse of the pain be so great, that it will not yeeld to the described medicines, then it is fit, because the disease is extreme, to use (according to *Hypocrates* counsell) extreme remedies, such as are those which follow. Rx. *axun- gia gallina, olei laurini mastic. & euphorb. an. 3i. pulver. euphorb. & pyreth. an. 3i. fiat li- tus*; herewith let the part bee rubbed every day, for it is a very effectuall medicine. For *euphorbium* and pellitory by their heat attenuate and resolve, the capons grease and oile of bayes, relaxe, the oyle of mastich strengtheneth the part and hindereth a new defluxion. Also there is made a very anodine ointment of oyle of foxes, where- in earth-wormes, the roots of elecampane and bryonie have beene boyled, with a lit- tle turpentine and waxe; this softens, attenuates and resolves the cold humour im- pact in the joints. Or else, Rx. *seminis sinapi pulverisati, & aceto acerrimo dissoluti, 3iii. mellis anacardini 3ii. aqua vite 3i. salis com. 3ii.* Let them bee all mixed together, and applyed to the pained part. Or, Rx. *picis nigra, 3iii. terebinth. veneta 3ii. sulphuris vivi subtiliter pulverisati 3iii. olei quant. sufficit, liquefiant simul, fiat emplastrum*; Let it bee spread upon leather, and laid upon the part for two or three dayes space, if the pati- ent perceive any ease thereby; if otherwise, let it be changed as we said before. Some for the same purpose apply nettles thereto, and presently after wash the part in sea or salt water. Others foment the part with vinegar wherein pidgeons dung hath

A vesicatory a- gainst the con- tumacy of the conjunct mat- ter.

beenne boyled. A vesicatory made of very sower leaven, *cantharides*, and a little *a- qua vite*, is very powerfull to evacuate the conjunct matter. For thus the malignant and virulent serum, or whayish humour is let out, whence followes some ease of the pain. Now there are some gouty paines, which cannot bee lessened or asswaged unlesse by remedies more powerfull than the distemper, therefore vesicatories ought not to be rejected, seeing that the Ancients in this affect have also made use of actuall caute- ries, as we shall shew hereafter. *Christopher Andreas* in his booke termed *Oëcoitarie* [that is, Domestick physicke] much commends Oxe dung wrapped in cabbage or vine leaves, and roasted in the embers, and so applyed hot to the grieved part.

CHAP. XVI.

Of locall medicines to be applied to a hot or sanguine Gout.

Here must wee in the beginning make use of repercussives, such as are cold and dry, that they may contend with the morbifick matter by both their qualities; also let them bee astringive, so to adde strength to the part. But I would have you alwaies to understand that you must first premise generall medicines. *R. albuminum ovorum nu. iv. succi lactuce & solani an. ʒi. aq. rosar. ʒii. incorporentur simul, & fiat linimentum sepius renovandum.* Others take the meale of barley, lentils, acatia, oile of roses, myrtles, and with a little vineger they make a cataplasme; Or, *R. sumach, myrtillorum, boli arm. an. ʒʒ. acatia, corticum granat. balust. an. ʒi. aq. plantag. & rosar. an. ʒiii. ol. rosati ʒiʒ. aceti ʒi. farina hordei & lentium quantum satis erit, fiat cataplasma.* This is very excellent and effectuell to stay or hinder phlegmonous and erysipelatous tumours. Also you may make a Cataplasme *ex mucagine Cydoniorum in aqua rosarum extracta, cassia fistula, oleo rosato, & aceto.* Or, *R. pampinorum vitis viridum, m. ii. terantur & bulliant in oxycrato ex aqua fabrorum, cui adde sumach. conquassati ʒi. olei rosati ʒii. farina hordei quantum sufficit, fiat cataplasma.* Or else, *R. succi sempervivi, hyoscyami, & portulacæ an. ʒiv. corticum mali granati ʒiʒ. farina hordei ʒv. vini austeri quantum sufficit, fiat cataplasma;* this is much commended, for it hath entring therein wine and the pomgranate pill, which both are very great astringives; and the juices are exceeding cooling the meale also hinders and thickens the sanguine humours that are ready to flow downe, and make the medicine of a good consistence. Another. *R. fol. hyoscyami & acetosæ an. m. i. involvantur papyro, & sub cineribus coquantur, mox cum unguento populeon. aut rosati ʒii. incorporentur;* and then lay this Cataplasme thus made warme unto the part. Another, *R. florum hyoscyami lb. ii. ponantur in phiala vitreata, & reconde in fimo equino donec putruerint, accipe ex putredine ʒii. in quibus dissolve olei de junipero ʒʒ. fiat linimentum ad usum.* Others beat the pulpe of a Gourd or Citrull in a mortar, and so apply it. Another, *R. mucag. sem. psilii, & cyton. extract. in aqua rosar. & solani an. ʒiiii. olei rosati omphacini, ʒiii. vini granatorum ʒi. vitellos ovorum cum albumine nu. iii. camphoræ ʒi. incorporentur simul, fiat linimentum.* Or else, *R. ol. rosati. omphacini ʒiv. album. ovorum cum vitellis nu. vi. succi plantag. & solani, an ʒi. farina hordei ʒiii. incorporentur simul, fiat cataplasma.* Or, *R. farina fabarum & hordei an. ʒiii. olei rosati, ʒii. oxycrati quantum sufficit, coquantur simul, fiat cataplasma.* Another, *R. mucag. sem. psilii ʒiiii. ol. rosati ʒii. aceti ʒi. vitellos ovorum, nu. iii. croci ʒi. misce.* Pliny reporteth that Sextus Pomponius the Governour of the hither Spaine, as hee overlooked the winowing of his corne, was taken by the paine of the gout in his feet, wherefore hee covered himselfe with the Wheat above his knees, and so was eased, his feet being wonderfully dryed; and he afterwards used this kind of remedy. It is note worthy, which often happeneth, that the paine cannot bee altogether eased by such like remedies, by reason of the abundance of bloud impact in the part; wherefore it must bee evacuated: which I have done in many with good successe, opening the veine which was most swelled and nigh to the affected part; for the paine was presently asswaged. Neither must wee too long make use of repercussives; lest the matter become so hardened, that it can scarce bee afterwards resolved, as when it shall bee concrete into knots and plaisterlike stones: resolving medicines are to bee mixed with repercussives conveniently applied, so to dissolve the humour remaining as yet in the part, whereof shall bee spoken in the following Chapter.

What repercussives are here required.

An excellent astringent cataplasme.

lib. 22. cap. 25.

Phlebotomy to evacuate the conjunct matter, and allwaye paine.

C H A P. XVII.

Of locall medicines for a cholericks gout.

What repercu-
sives are here
required.



He repercussives that must first be used in this kinde of gout ought to bee cold and moiste, that so they may resist both the qualities of choler: such are the leaves of night-shade, purslaine, house-leeke, henbane, sorrell, plantaine, poppy, cold water, and the like, whereof may bee made divers compositions. As, *R. succi hyosciami, semper vivi, lactuc. an. ʒii. farin. hordei ʒi. olei rosati, ʒii. agitando simul fiat medicamentum*; let it bee applyed and often changed, for so at length it will assuage the inflammation. Some thinke the braine of a hogge mixed with white starch, or barley meale and oyle of roses, an excellent medicine. The leaves of mallowes boyled in water, and beaten with a pestell, and applyed, assuage pain. *R. mucag. sem. psilii extract. in aq. solani, vel rosarum ʒii. farin. hordei ʒi. aceti q. s. fiat linimentum*. Or else, *R. unguent. rosat. mesua, & populei. an. ʒiii. succi melonum ʒii. alb. ovorum, nu. iii. misceantur simul pro litu*. Also a sponge dipped in oxycrate, and pressed out again and applied thereto doth the same. Or else, *R. fol. canthium rub. m. ii. coquantur in oxycrato & terantur: adde ovorum vitellos tres, olei rosati ʒiii. farina hordei quantum sufficit, fingatur cataplasma*: Also you may take the crude juice of cole-worts, dane-weede, and roses beaten and pressed out, and of these incorporated with oyle of roses and barley meale make a cataplasme. In winter time, when as these things cannot bee had greene, you may use *unguentum infrigidans Galeni & populeon*. Or else, *R. cera alba ʒi. croci ʒi. opii ʒiiii. olei rosati quantum sufficit, marcerentur opium & crocus in aceto, deinde terantur & incorporentur cum cera & oleo, fiat ceratum*; spread it upon a cloth, & lay it upon the part, and all about it, and let it bee often renewed. Some cut Frogges open and apply them to the grieved part. It is confirmed by sundry mens experience, that the paine of the *sciatica*, when it would yeeld to no other remedy, to have beene asswaged by annoynting the part affected with the mucous water or gelly of Snailles, being used for the space of seven or eight dayes; the truth whereof was assured mee by the worthy Gentleman the Lord of *Longemeau*, a man of great honesty and credit, who himselfe was troubled for sixe moneths space with the *sciatica*. This water is thus made, Take fifty or sixty red Snailles, put them in a copper pot or kettle, and sprinkle them over with common salt, and keep them so for the space of a day; then presse them in a course or haire cloth; in the expressed liquor dip linnen ragges, and apply them so dipped to the part affected, and renew them often. But if there bee great inflammation, the Snailles shall bee boyled in Vineger and Rose-water. They say that Citrons or Oranges boyled in Vineger, and beaten in a mortar, and incorporated with a little barley or beane flower, are good against these paines. Or else, *R. pomorum coctorum in lacte lib. i. butyri ʒi. vitellos ovorum, nu. ii. aceti ʒi. fiat cataplasma*. There are some who take cheefe crud newly made, and mixe it in a mortar with oyle of Roses and barley meale, and so apply it; it represteth the inflammation and asswageth paine. Others mixe *Cassia* newly extracted forth of the Cane, with the juice of Gourds or Melons. Others apply to the part the leaves of Cole-worts, and Dane-weede or smallage, or all three mixed together and beaten with a little Vineger. Others maeerate or steepe an ounce of linseed in Wurt, and make the mucilage extracted therefrom into a Cataplasme with some oyle of Roses and barley meale. Some put oyle of poppyes to the pulpe of Citrulls or Gourds being beaten, and so incorporate them together, and apply it.

A cerate with
opium.

The water of
Snailles.

A historie.

A particular
stove.

This following medicine hath its credit from a certain Gascoine of Basas that was thoroughly cured therewith, when as he had bin vexed long & much with gouty paines, above the common custome of such as are troubled with that disease. Thus it is; Take a great ridge tile thick & strong, and heat it red hot in the fire, then put it into such another tile of the same bignesse, but cold, lest it should burne the bed-clothes, then forthwith fill the hot one with so many Dane-wurt leaves, that the patient may safely lay the affected part therein without any danger of burning it. Then let the patient

ent

ent endure the heate that comestherefrom, and by sweate receive the fruit thereof, for the space of an houre, substituting fresh Dane-wurt leaves, if the former become too dry, as also another hot tile, if the former shall grow too cold before the houre bee ended. This being done, let the part bee dried with warme and dry linnen clothes. Use this particular stowe for the space of fifteene dayes, and that in the morning fasting; afterwards annoynt the part with this following oyntment. *Rx. succi ebuli lb. i. B. olei com. lb. i. misceantur simul*, and let them be put into a strait mouthed glasse, and well luted up; then let it boyle in *balneo Mariae*, being first mixed with some wine, untill the halfe thereof bee consumed, for the space of tenne or twelve houres, then let it coole, and so keepe it for use, adding thereto in the time of annoynting, some few drops of *aqua vita*. It may bee annoynted twice or thrice in a day, long after meate. Moreover the roots and leaves of Dane-wurt boyled in water, beaten and applyed asswage paine; the oyle thereof chymically extracted performes the same.

An ointment of
the juice of
Dane-wurt.

But if the contumacious paine cannot bee mitigated by the described remedies, and becomming intolerably hot and raging, make the patient almost to swoone, then must wee fly to narcoticks. For although the temper of the part may bee weakened by these, the native heate diminished or rather extinguished; yet this is a far lesse inconvenience than to let the whole body bee wasted by paine; These things have a powerfull refrigerating and drying faculty, taking away the sense of the paine, and furthermore, incrassate, thin, acride and biting humours, such as cholericke humours are. Wherefore if the matter which causeth the paine be thick, wee must abstaine from narcoticks, or certainly use them with great caution. *Rx. mica panis secalini parum cocti in lacte ℥ii. vitellos ovorum, nu. ii. opii ℥i. succorum solani, hyoscyami, mandragoræ, portulacæ, sempervivi, an. ℥i.* Let them bee mixed together and applyed, and often changed. Or else, *Rx. fol. hyoscyami cicuta, acetos. an. m. i. bulliant in oxycrato & contundantur, cumque vitellis ovorum crudorum nu. ii. & olei rosat. ℥ii. farina hordei quod sit satis, incorporentur, fiat cataplasma;* with the use thereof I am accustomed to asswage great pains. Or else, *Rx. Opii ℥iii. camphor. 3℔. olei nenuph. ℥i. lactis ℥ii. unguent. ros. Galeæ ℥iv. incorporentur simul in mortario, applicentur.* Moreover, cold water applyed & dropped upon the part drop by drop, is narcotick and stupefactive, as *Hippocrates* affirmeth, *Aphor. 29. Sect. 5.* for a moderate numbness minga-tereth paine; there is also another reason why it may bee profitably used in all paines of the Gout, for that by repelling the humours, it hindereth their defluxion into the part. Mandrage apples boyled in milke, and beaten, doe the same thing; also the leaves of henbane, hemlock, lettuce, purslaine, being so boiled, doe the same. If any desire to use these more cold, hee must apply them crude, and not boyled.

When to use
narcoticks.

A cataplasme
with opium.

But the excesse of paine being mitigated, wee must desist from the use of such narcotickes, and they must rather bee strengthened with hot and digerating things; otherwise there will bee danger lest it bee too much weakened, the temper thereof being destroyed, and so afterwards it may bee subject to every kinde of defluxion. Wherefore it shall bee strengthened with the formerly described discussing fermentations, and these ensuing remedies. As, *Rx. gum. ammoniaci & bdellii an. ℥i. dissolvantur in aceto, & passentur per setaceum, addendo styracis liquid. & farin. fennug. an. 3℔. pul. iros ℥iiii. olei chamæm. ℥ii. pulveris pyrethri ℥ii. cum cera fiat emplastrum molle.* Or else, *Rx. rad. emulæ, ebuli altheæ an. lb. B. sem. lini, fennugr. an. ℥ii. ficum ping. nu. xx. coquantur completè & trajiciantur per setaceum, addendo pul. euphorb. ℥ii. olei chamæm. aneth. & rutacei, an. ℥iiii. medulla cervi ℥iv. fiat cataplasma.* Yet you must use moderation in discussing, lest the subtler part of the impacted humour being discussed, the grosser part may turne into a stony consistence, which also is to bee feared in using repercussives.

How to amend
the harm done
by narcoticks.

Discussers.

A meane to be
used in discus-
sing.

I also omitted, that, according to the opinion of the Ancients, bathes of fresh water, wherein cooling herbes have been boiled, used three houres after meat, conduce much to the asswaging of pain; for so used, they are more convenient in cholerick natures, and spare bodies, for that they humect the more, and quickly digest the thin and cholerick, and consequently acride vapours, the pores being open-

Bathes asswage
the paine of the
gout.

How meats of
grosse juice are
profitable.

ed, and the humours dissipated by the gentle warmenesse of the bath. After the bath, the body must be annoynted with *hydraeum*, or oyle and water tempered together, lest the native heate exhale, and the body become more weake. Meates of more grosse juice are more convenient, as beefe, sheeps-feet, and the like, if so be that the patient can digest them, for these inspissate the cholerick bloud, and make it more unfit for defluxion.

CHAP. XVIII.

What remedies must be used in paines of the joynts proceeding of a distemper onely, without matter.

A historie.



Aines also happen in the joynts by distemper without any matter, which though rare, yet because I happened once to feele them, I have thought good to shew what remedies I used against them. I once earnestly busied in study, and therefore not sensible of such externall injuries as might befall mee; a litle winde comming secretly in by the crannies of my studie, fell upon my left Hippe; at length wearied with study, as soone as I rose up to goe my way, I could not stand upon my feete, I felt such bitter paine without any swelling or humour which might bee discerned. Therefore I was forced to goe to bed, and calling to minde, that cold, which was absolutely hurtfull to the nerves, had bred mee that paine, I attempted to drive it away by the frequent application of very hot clothes; which, though they scorched and blistered the sound parts adjoyning thereto, yet did they scarce make any impressioun upon the part where the paine was settled, the distemper was so great, and so firmly fixed therein. And I layed thereto bagges filled with tryed oates and millet, and dipped in hot red wine; as also oxe bladders halfe filled with a decoction of hot herbs. And lastly, a wooden dish almost filled with hot ashes, covered over with sage, rosmarie, and rue lightly bruised, and so covered with a cloth, which, sprinkled over with *aqua vite*, sent forth a vapour which asswaged the paine. Also browne bread newly drawne out of the oven, and sprinkled over with Rose-water, and applyed, did very much good. And that I might more fully expell this hurtfull cold, I put stone bottles filled with hot water, to the soales of my feete, that the braine might bee heated by the streightnesse and continuuity of the nerves. At length, by the helpe of these remedies, I was very well freed from this conrumacious distemper, when it had held mee for the space of foure and twentie houres.

Hip. ap. ro. felt.

Divers remedies for paine arising from a cold distemper without matter.

A fuliginous vapour sometimes the cause of the gout.

There is another kind of gouty pain sometimes caused by a certain excrementitious matter, but so thin and subtile that it cannot bee discerned by the eyes. It is a certaine fuliginous or sootie vapour, like to that which passeth from burning candles or lampes, which adhers and concreets to any thing that is opposed thereto; which being infected by the mixture of a virulent serous humour whithersoever it runneth, causeth extreme paine, somewhiles in these, and otherwhiles in other joynts, unlesse you make a way therefore, when as it seeketh passage forth, which must be done by hornes, cupping-glasses, vesicatories, cauteries, or other the like art.

CHAP. XIX.

What is to be done after the fit of the gout is over.



It is convenient when the paine is asswaged, that you strengthen the joints. Now, to strengthen them is not onely to binde and dry, but wholly to amend the weakenesse left in the part by the disease, that is, to discusse the humour, if any superfluity thereof remaine; but to humect the part, if the moisture bee exhausted and dried up. But

How to strengthen the joints.

Remedies for the weaknesse left in the joints after the paine is gone.

such as are troubled with the gout, after they are freed from their paine, have notwithstanding such impotency of their joynts that they cannot goe of a long time after; for that the nerves and tendons which are in great number in the feete, being moistened with much phlegme, are so relaxed, that they can no more sustaine or beare themselves upon their feete, than paper when it is wet can bee made to stand. Wherefore, that they may recover the use of their feete, the impacted humour must by all meanes be discussed, and spent with fomentations, cataplasmes, drying and astringent emplasters. You may use the formerly described fomentation, encreasing the quantity of alume and salt, and adding thereto a like quantity of *sulphur vivum*: then the following emplaster shall bee applyed thereto. *Rx. mas. emplast. contra rupturam ℥iiii. tereb. ℥ii. pulv. ros. rub. nucum cupress. gal. laram, gran. myrtil. & fol. ejusdem, thuris, mastich. & caryophyl. an. ℥i. malaxentur omnia simul, manibus inunctis oleo myrtino & mastichino, fiat emplastrum.* Let it bee spread upon leather to a just bignesse, and applyed to the top and sole of the foote. Draw over the plaster, and the whole legge a stocking made of a tanned dogges skinne; this emplaster strengtheneth the nerves, draweth forth the humour impact therein, and intercepts the defluxion. But the dogge-skinne stocking preserveth the native heate of the part, and for that it bindeth, hindreth the defluxion into the feete.

The benefit of a dog-skinne stocking.

CHAP. XX.

Of the Tophi, or knots which grow at the joynts of such as are troubled with the Gout.



Some that are troubled with the gout, have knotty bunches growing in their joynts, which by the Ancients were called *Tophi*. These are generated by the congestion of grosse, viscide and crude phlegme, with a little admixtion of an acride and cholericke humour. These matters remaine settled in the part, for that it being too weake cannot

Whence the tophi are generated.

digest and depresse them; wherefore being there impact, they easily concrete into a certaine plaster-like or chalke-like substance, whilst by the adventitious and burning heate caused by paine, and the gouty malignity, their more subtile part is disperfed, but the grosser subsides. Yet sometimes the unfit application of repercussive or discussive medicines is a cause of the generation of these *Tophi*. For by the former, the impact matter is incrassated and gathered together; but by the latter, the subtile part being discussed, the remnant that subsides concretes into *Tophi*. Those medicines which are made to mollifie, ought to have a moderately heating, and humecting faculty, that they may diffuse, and as it were dissolve the impact matter; such is warme water, the decoction of emollient herbes, the decoction of Calves or Sheepes entrailes, heads and feete: after these or the like fomentations, you shall use the following medicine. *Rx. axungie, human. anseris & gallina, medul. cervin. an. ℥ii. tereb. ven. ℥i. aq. vit. parum, cera quantum sufficit, fiat unguentum molle.* Then this which followeth will bee good. *Rx. rad. alth. liliorum, bryon. lapath. acuti, an. ℥iiii. coquantur complete & trajiciantur per setaceum; adde gum. ammon. bd. l. galb. opopanax in aceto dissolutum ℥i. medul. cervin.*

The unfit application of discussive & repercussive medicines cause the tophi.

Mollifying medicines.

℥i. ℞.

ʒ i ʒ. incorporatentur simul, & applicentur. Or else, R. olei liliorum, amygd. dul. medulla
 cruris cer. an. ʒ ii ʒ. mucag. sem. lini, alth. fœnugr. an. ʒ i. cera quantum sufficit; fiat ce-
 ratum. Or else R. empl. de vigo cum mercurio, & cerat. de æsipo humida descript. Phila-
 grii, an. ʒ. ii. malaxentur simul cum oleo lilior. fiat massa. Or else, R. gum. ammon. o-
 popan. galb. bdel. dissolutorum in aceto, an. ʒ ii. panno lineo colatis, adde pulv. sulph. nitr.
 sinapi, pyrethri, an. ʒ ʒ. styracis, liq. & axung. hum. an. ʒ i. res. pini, tereb. ven. an. ʒ ʒ.
 cera quantum sufficit, fiat ceratum molle. This which followes is thought most effectu-
 all in the opinion of Galen and Avicen. R. pedes porcel. bene salses, nu. iiii. veterem
 pernam, cum illis coque: addendo sub finem, radicis bryonia, lapath. acut. an. ʒ iiii. axun-
 gia tauri, & medul. cervin. an. ʒ i. cum caseo putrefacto fiat empl. molle ad usum. This
 which followes is also most effectuell. R. casei acris & putrefacti, ʒ iiii. pul. sulph. vivi
 euphorb. & pyreth. an. ʒ iiii. decoctionis veteris perna & porcellorum quod sufficit ad incor-
 porandum, ducantur in mortario, & fiat empl. ad usum. Or else, R. spuma nitri, ʒ vi. te-
 reb. ʒ ii. olei veteris, ʒ viii. lixivii, quo lana pileorum lavantur, & cera quantum sufficit,
 fiat ceratum satis molle. After the use of emollients, a fumigation shall be made in this
 manner. Heat a cogle-stone, millstone or bricke, red hot in the fire, take it forth, and
 cast upon it a sufficient quantity of very sharp vinegar, & aqua vita, the rising vapour
 shall be diligently received by the affected member, for this hath a faculty to attenu-
 ate and cut grosse, viscide, and plaster-like matter, yea also, and to break the skin; yet
 that is broken oft time of its own accord, without the help of either medicine or in-
 strument. To conclude, these medicins which are good to mollifie scirrhus tumors,
 the same are also good to soften the gouty knots and tophi. But wee must note that
 these knotty bunches are sometimes suppurated, not truly by the impact & plasterlike
 matter, but by a new defluxion comming on a sodain, & then it is necessary to make
 way for the contained matter, which being done, fist there commeth forth a humor
 like milk, then a plaster-like matter, then it leaves behinde it an ulcer to be cured by
 applying thereto Empl. gratia dei, and others as the Surgeon shall think fit.

An effectuell
fumigation.

CHAP. XXI.

Of flatulencies contained in the joints, and counterfeiting true Gouts,
and of the remedies to be used thereto.

In what joints
flatulencies are
chiefly genera-
ted.
Signes of flatu-
lencies.



How flatulen-
cies may make
you beleieve
there is pus or
matter.

Why hard to
cure.

F T-times there is small quantity of humour, which moves the paine
 of the gout; but much flatulencie mixed therewith, especially in great
 joints, as in the huckle or hippe-bone, and the knees; they sometimes
 cause so great distention, that they drive the heads of the bones forth
 of their places. You may partly understand it is so, if a tense paine
 afflict the patient with any sense of heaviness; if when you presse the tumour with
 your fingers, the place retaineth no marke or impression thereof, as happens in an æ-
 dema, but on the contrary, a flatulent spirit lifts it up as it were by renitency, as if one
 should thrust a pair of bellows which are filled with wind; hence the part cannot per-
 forme its duty, for that the spaces of the joints are possessed with abundance of fla-
 tulencies, so that the liberty of motion is intercepted, and the member is kept as it
 were bound up. Many no very skillfull Surgeons putting their fingers to these kind
 of tumours, so that lifting up the one they presse down the other, when as they per-
 ceive the flatulency, as it were, rising between their fingers, supposing it to be the
 motion of pus, or matter already generated and flowing up and downe, as is usuall in
 impostumes, they have opened it by incision; but when as nothing flowed forth it ap-
 peared how much they were deceived, yet in the interim, by this their rashness they
 have caused many dangerous symptomes, as encrease of pain, defluxion of humours,
 by force whereof the bones have beene dislocated, and brought to the patient an un-
 curable lameness. But these flatulent goutts are seldome without some phlegmatick
 matter, which is neither too crude, nor viscide. Such like flatulencies are not easi-
 ly discussed, nor at the first endeavour, by reason of a cold distemper which they
 bring to the part, and the density of the membranes and ligaments by which the ar-
 ticulation

riculation is knit and fastened, so that scarce any part of that which is there shut up can breath forth of such strait passages. Therefore the cure must be undertaken with resolving, discussing, and drying fomentations; as for example, with a decoction of fennell, aniseeds, rue, chamomill, melilore, sage, rosemary, *origanum*, calamints, horehound, and the like, boyled in wine with a litle Lye, rose vinegar, and common salt. This following ointment shall bee used after the fomentation. *R. olei chamæm. aneth. rut. lauri, an. ʒ ii. cum cera alba, fiat linimentum addendo aq. vitæ parum.* After you have anointed it, apply thereto this following cataplasme. *R. flor. cham. melil. aneth. ros. rub. pulv. an. m i. fol. malv. & absinth. an. m ʒ. furfur, m i. buliant omnia simul cum lixivio, & vino rubro, deinde pistentur cum medulla panis, & farina fabarum, quantum sufficit, fiat cataplasma, addendo ol. rosar. & myrtin. an. ʒ ii.* Some highly approve of this following medicine for the wasting of flatulencies. *R. axum. sul. ʒ iv. calcis vivæ, ʒ i ʒ. terantur diligenter in mortario, & incorporata applicentur.* Or else, *R. stercor. caprar. cocti cum vino & aceto, an. lb. ʒ. tereb. venes. & mell. com. an. ʒ ii. aq. vitæ, ʒ ʒ. pul. rad. treos florent. & sabin. an. ʒ iii. olei rut. & aneth. an. ʒ i. farin. fabarum quantum sufficit.* Make a cataplasme to the forme of a pultis. Also stoupes dipped in oxycrate, and wrung out, shall be applyed: in this oxycrate shall be boyled wormewood, *origanum*, chamomill, melilore, rue, common salt, adding thereto some *aqua vitæ*. Then the part shall be bound up as strait as the patient can endure it; in conclusion, that the native strength may by little and little bee restored to the part, it shall be fomented with Lye made of the ashes of Oake-wood and the cuttings of vines, wherein shall be boyled, salt, *sulphur*, choise alome, and wetting linnen cloaths, or stoups therein, and applying them, it shall be straitly swathed up. Yet if great pain shall more cruelly vex the part, then neglecting for a time the proper cure of the disease, you shall withstand the symptome by rubbing the part, and anointing it with some discussing oile, laying thereon some moist wooll & other anodyne things.

CHAP. XXII.

Of the Ischias, Hip-gout, or Sciatica.

WHOR that the hip-gout in the greatnesse of the causes, bitternesse of pain, and vehemency of other symptomes, easily exceeds the other kindes of Gout, therefore I have thought good to treat thereof in particular. The pain of the *Sciatica* is therefore the most bitter, and the symptomes most violent, for that the dearticulation of the huckle bone, with the head of the Thigh-bone, is more deepe than the rest; because also the phlegmaticke humour which causeth it, is commonly more plenteous, cold, grosse, and viscid, that flowes down into this joint, and lastly because the *Sciatica* commonly succeeds some other chronicall disease, by reason of the translation and falling down thither of the matter, become malignant and corrupt by the long continuance of the former disease. But the paine not onely troubles the hippe, but entering deepe, is extended to the muscles of the buttockes, the groines, knees, and very ends of the toes, yea often times it vexeth the patient with a sense of paine in the very *vertebra* of the loines, so that it makes the patients, and also oft times the very Physitians and Surgeons to thinke it the wind or stone Collicke. The cause of such wandering and dispersed paine is to bee referred to the manifold distribution of the nerves which come to that joint from the loines and holy-bone, for they are sent into the muscles of the buttockes, and so dispersed over the whole legge to the very ends of the toes, as it is shewed in our Anatomy. Therefore the paine is largely extended, that is, to what part soever a nerve runs which comes from the affected Hippe. Often times there is no swelling, no rednesse, nor distemper manifest to the eye, by reason that the veines are very few which rise into the surface and skinne of this part, and the humour lyes, as it were, sunke in; which is the cause that divers times the excrementitious humours mixed with flatulencie, runne so violently into the cavity of this joint, that relaxing the ligaments

Why it hath
the most grie-
vous symp-
tomes.

The cause of
the large sprea-
ding of the
paine.

The thighbone
often dislocated
by the *Sciatica*.

gaments, as well proper as common, the head of the thigh-bone is easily driven out from hence, so that it may never be restored again, if it remain so for any space of time; for that in this time the humor falling down into this cavity, by delay concretes as it were into a stony body, and the head of the Thigh-bone weares it selfe another cavity in the neighbouring bone, but the lips of the true cavity, which are gristly, become more streit and deprest, and lastly all the ligamentous bodies moistened with this excrementitious humour become more loose and weake, whence succeed many and most grievous symptoms, as lameness, & the decay not only of the thigh & leg, but at length of the whole body, and lastly a slow and hectick feaver, which in continuance of time will consume the patient for the causes formerly mentioned. Therefore let Physitians and Surgeons have a care that they resist it at the first, and with such powerfull remedies as are mentioned in the following chapter, hinder the springing up and growth of the formerly mentioned symptoms.

CHAP. XXIII.

The cure of the *Sciatica*.

Why we must
open a veine in
the *Sciatica*.



Hough the *Sciatica* bee commonly occasioned by tough phlegme, yet if the patient be strong and abound with blood, and all things else consent, it shall bee good to draw blood by opening a veine; for phlebotomy equally evacuates all humors; therefore the falling downe of the humors into the part affected, is thereby hindered, or retarded. Verily I have knowne no speedier remedy to assuage the paine of inflammation, than blood-letting, being first made on the *Basilica* of the grieved side for revulsions sake; and then for evacuation of the conjunct matter on the *vena ischiadica*, which is at the outside of the ankle, if the paine of the *Sciatica* be more on the outside; or else on the *Saphia*, which is on the inside of the ankle, if the inner parts bee more pained. The quantity of blood which is to be drawne must be left to the judgement of the physitian, without whose advise I would attempt nothing in this case. Also acride glysters are good, if there be nothing which may hinder, as ulcers of the guts, or hæmorrhoids. *Rx. rad. acor. ʒ ii. centaur. rut. salv. roris. calam. orizan. puleg. an. m. ʒ. stachad. arabic. flo. cham. melil. aneth. an. p. i. sem. anis. & fœnic. an. ʒ ʒ. fiat decoctio ad ʒ. i. in colatura dissolve hiera & diaphen. an. ʒ ʒ. mellis anthos. sacch. rub. an. ʒ i. olei liliorum ʒ iii. fiat clyster.* Strong purgations are also here usefull, as of *pillul. fœtid. arthritic. Asaiereth. de Hermodactylis*, and others used in phlegmaticke causes. *Electuarium Diacarthami* purgeth cholter and phlegme. Often vomitings doe not onely evacuate the humors, but also make revulsion, as wee have formerly delivered. Bathes and sweates profit no otherwise than a decoction of *guajacum* or *sarsaparilla*. If heat molest the part, then foment it with oile of roses and vinegar, especially if the paine be deepe in, for vinegar by its tenuity pierceth to the bottome, and makes way for the oile, which of its owne nature is anodyne. After the use of generall medicines you shall apply attractive and resolving things: emplasters of pitch and sulphur, or of *Ammoniacum*, *euphorbium*, *Terebinthina*, *Propolis*, *Galbanum*, *Bdelium*, *Opopanax*, draw the humour from within to the surface or skinne. As in like sort also the chymicall oile of sage, rosemary, pellitory of Spaine, and such other like doe the same, which by reason of the tenuity of their substance, and their separation from earthy impurity, have farre more powerfull and expedite faculties to penetrate and discusse. Yet must you use none of all these without very good judgment and deliberation, otherwise there will be danger of inflammation.

Strong purgati-
ons in the *sci-
atica*.

There may also be made fomentations of discussing and resolving herbes, as the rootes and leaves of dane-weeds, orris, Bay and Juniper berries, the seeds of fennugreece, anise, fennell, the leaves of sage, rosemary, chamomile, melilote, elder, and the like, boyled in wine and oyle: the following plaster is much commended by the antients to digest, or resolve and assuage the paine, with this which drawes forth thornes, splinters, and rotten bones. *Rx. sem. urtic. mundet. spumaberac. salis ammoniaci*

moniaci, rad. aristoloch. rotund. colocynth. terebinth. venet. an. ʒ x. sænug. piperis longi, xylobalsam. thur. myrrha. adipis cap. gum. pini, an. ʒ v. cera, lb. ʒ. lactis ficus sylv. ʒ ʒ. ex omnibus secundum artem præparatus cum olei liliorum, & vini generosi quantitat. sufficiente, fiat emplastrum. Let it be applyed to the Hippe. Or, *Rx. sinapi acerrimo aceto dissoluti, ʒ ii. fermenti acris, ʒ ʒ. pul. hermodact. ʒ ii. mellis com. ʒ iii. tereb. ʒ iv. olei laur. & de spicâ, an. ʒ ii. far. sænug. ʒ i ʒ. terra formicarum cum ovis, lb i. fol. laur. salv. rut. rorismarin. an. m. ʒ. vermium terrest. præpar. lb ʒ.* The earth with the egges and wormes shall be boyled apart with the whire wine, and herbes cut in pieces, and these being strained out, the rest of the things shall bee added according to art, and then it shall be applyed to the Hippe. Or else, *Rx. rad. enul. camp. sigil salom. bryon. bismal. an. ʒ ii. coquantur complete & terantur, trajiciantur per setaceum, addendo farin. sænug. & hordei, an. ʒ i. olei liliorum, & chamam. an. ʒ iii. tereb. ʒ iv. cera quantum sufficit, fiat cataplasma.* It resolves, asswageth pain, and calleth forth the humours to the skin. Or else, *Rx. rad. sigil. beatæ Mariæ, ʒ vi. empl. diachyl. albi, ʒ iv. croci in aqua vitæ dissoluti, ʒ ii. terebinth. ʒ i. ol. de spica nardi quantum sufficit, fiat empl.* Let it be spread upon leather and applyed warme. I have oftentimes suddenly asswaged the paine of the *sciatica* by putting to the pained Hip the root of black Bryony cut into slices, and applyed, when the matter was cold. Or else, *Rx. cera citrin. & tereb. abiet. an. ʒ ii. liquefiant simul in vase duplici, & ubi refrixerint, adde pulv. Hermodact. ʒ ʒ. flor. chamam. irid. flor. an. ʒ iii. spica nardi, flor. thymi, an. ʒ ii. interioris cinamomi elect. & semin. nasturt. an. ʒ ii. croci, ʒ iv. malaxantur simul manibus axungia porci veterenon salita unctis, & fiat massa empl.* But if the paine be not by this meanes asswaged, then must we come to more powerfull medicines, as to use great Cupping Glasses applyed with much flame, and to vesicatories. As, *Rx. cantharid. quibus detractæ sunt alæ, ʒ ii. staphisagr. ʒ iii. sinapi, ʒ i ʒ. fermenti acerrimi ʒ ʒ. incorporentur simul, & fiat vesicatorium.* Also blisters may be raised by applying the inner rinde of Travellers joy to the wait of some two drammes, a little beneath the grieved part: you must have a care that the ulcers that remaine after the skinne of the blisters is taken off, doe run, & be kept open for some time after, that so more of the humor contained in the part may bee drawne away. But if wee cannot availle by these means, we must according to Hippocrates his counsaile, come to the last and extremest remedy. Such (saith he) as troubled with a long paine of the *sciatica*, have their Hippe fall out of joint, their leg consumes, & they become lame unlesse they be burnt: we have also read the same approved by Celsus. It is the last (saith he) and most effectuall medicine in longer diseases, to cauterize with hot irons the skinne of the Hippe in three or foure places; and then not to heale up these ulcers or fontenels as soone as may be, but to keepe them open by putting thereinto bullets of gold, or silver, or pills of Gentian, or waxe melted and wrought up with the powder of vitrioll, mercurie, and the like cathæretickes untill the affect against which we use this remedy be helped, for by this meanes many have bin helped. Therefore three or foure actuall cauteries, or hot irons shall be so thrust in about the joint of the Hip, that they may enter into the flesh some fingers breadth, yet so that you shun the nerves. Cauteryes here doe good, for that by heating the part, they heate and dissolve the cold humours, they cut, attenuate, and draw forth the grosse and viscid, so that they flow out by the ulcers, together with the quitture. Over and besides, the ligaments are strengthened by their cicatrization, and their loosenesse helped, & by this meanes the whole part is notably corroborated.

Blacke bryony
discutted.

A strong vesica-
tory.

The inner rinde
of Travellers-
joy a vesicato-
ry.

Aph. ult. sect. 6.

Lib. 4. cap. 22.

The use of
cauteries in the
sciatica.

CHAP. XXIII.

Of the flatulent convulsion, or convulsive contraction, which is commonly called by the French, Goute Grampe, and by the English, the Crampe.

What the
Cramp is.

The cause
thereof.

Who subject
thereto.

The cure.



That which the French call *Goute grampe*, wee heare intend to treat of, induced thereto rather by the affinity of the name, than of the thing, for if one speake truly, it is a certaine kinde of convulsion generated by a flatulent matter, by the violence of whose running downe or motion, oft-times the necke, armes, and legs are either extended, or contracted into themselves with great paine, but that for a short time. The cause thereof is a grosse and tough vapor, insinuating it selfe into the branches of the nerves, and the membranes of the muscles. It takes one on the night, rather than on the day, for that then the heat and spirits usually retire themselves into the entrailes and center of the body; whence it is that flatulencies may bee generated, which will fill up, distend and pull the part whereinto they runne, just as wee see lute-strings are extended. This affect often takes such as swimme in cold water, & causeth many to be drowned, though excellent swimmers, their members by this means being so straitly contracted, that they cannot by any meanes be extended. For the skin by the coldnesse of the water is contracted and condensed, and the pores therof shut, so that the engendered flatulencies have no passage forth. Such as give themselves to drunkennesse and gluttony, or sloth and idlenesse, are usually more frequently troubled with this disease, by reason of their heaping up of crudities. Therefore it is cured by moderate diet, and ordering of the body, and exercise of each part therof, for thus they gather strength, and the generation of the flatulent matter is hindered. In the very time when it takes one, the patient shall bee cured by long rubbing with warme clothes, and *aqua vita*, wherein the leaves of sage, rosemary, time, savory, lavender, cloves, ginger, and the like discussing and resolving things, have beene infused. The extension and flexion of the members or joints, and walking, are also good.

The End of the Eighteenth Booke.





OF THE LUES VENEREA, AND THOSE SYMPTOMES WHICH HAPPEN BY MEANES THEREOF.

THE NINETEENTH BOOKE.

CHAP. I.

A description of the Lues Venerea.

THe French call the *Lues Venerea*, the Neapolitane disease, the I-
talians and Germans [as also the English] terme it the French
disease, the Latines call it *Pudendagra*, others name it otherwise.
But it makes no great matter how it bee called, if the thing it selfe
bee understood. Therefore the *Lues Venerea* is a disease gotten or
taken by touch, but chiefly that which is in uncleane copulation;
and it partakes of an occult quality, commonly taking its origi-
nall from ulcers of the privie parts, and then further manifesting its selfe by pustles
of the head, and other externall parts; and lastly, infecting the entrailles and inner
parts with cruell and nocturnall tormenting paine of the head, shoulders, joynts,
and other parts. In proceffe of time, it causeth knots and hard *Tophi*; and lastly cor-
rupts and foules the bones, dissolving them, the flesh about them being oft-times
not hurt; but it corrupteth and weakeneth the substance of other parts, according
to the condition of each of them, the distemper and evill habit of the affected bo-
dies, and the inveteration or continuance of the morbidicke cause. For some lose
one of their eyes, others both, some lose a great portion of the eye-lids, other some
looke very ghastly, and not like themselves, and some become squint-eyed. Some
lose their hearing, others have their noses fall flat, the pallat of their mouthes perfo-
rated with the losse of the bone *Ethmoides*, so that in stead of free and perfect utte-
rance, they faulter and fumble in their speech. Some have their mouthes drawne
awry, others their yards cut off, and women a great part of their privities tainted
with corruption. There bee some who have the *Urethra* or passage of the yard ob-
structed by budding caruncles, or inflamed pustles, so that they cannot make wa-
ter without the helpe of a Catheter, ready to die within a short time, either by the
suppression of the urine, or by a Gangrene arising in these parts, unlesse you succour
them by the amputation of their yards. Others become lame of their armes, and o-
ther some of their legges, and a third sort grow stiffe by the contraction of all their
members, so that they have nothing left them sound but their voice, which serveth

What the *Lues*
venerea is.

What hurt it
doth to the
body.

The Leprosie
sometimes the
off-spring of the
Lues venerea.

for no other purpose but to bewaile their miseries, for which it is scantly sufficient. Wherefore should I trouble you with mention of those, that can scantly draw their breath by reason of an *Asthma*, or those whose bodies waste with a hecticke feaver and slow consumption? It fares farre worse with these, who have all their bodies deformed by a Leprosie arising therehence, and have all their throttles and throates eaten with putride and cancrus ulcers; their haire falling off from their heads, their hands and feet cleft with tetters and scaly chinkes: neither is their case much better, who, having their braines tainted with this disease, have their whole bodies shaken by fits of the falling sicknesse; who troubled with a filthy and cursed flux of the belly, doe continually cast forth stinking and bloody filth. Lastly, there are no kinds of diseases, no sorts of symptomes, wherewith this disease is not complicate, never to be taken away, unlesse the virulencie of this murrain be wholly taken away, and impugned by its proper Antidote, that is, *argentum vivum*.

CHAP. II.

Of the causes of the Lues Venerea.

The Lues venerea the scourge of whoremongers.

Here are two efficient causes of the *Lues venerea*; the first is, a certaine occult and specificke quality, which cannot be demonstrated; yet it may be referred to God, as by whose command this hath assailed mankind, as a scourge or punishment to restraints the too wanton and lascivious lusts of unpure whoremongers. The other is an impure touch or contagion, and principally, that which happeneth in copulation. Whether the man or woman have their privities troubled with virulent ulcers, or bee molested with a virulent strangury (which disease crafty Whores colour by the name of the whites) the malignity catcheth hold of the other; thus a woman taketh this disease by a man casting it into her hot, open and moist wombe; but a man taketh it from a woman, which, for example sake, hath some small while before received the virulent seed of a whore-master polluted with this disease, the mucous sanies whereof remaining in the wrinkles of the womans wombe, may be drawne in by the pores of the standing and open yard, whence succede malignant ulcers, and a virulent strangury. This virulencie, like a torch or candle set on fire, will by little and little bee propagated and sent by the veines, arteries and nerves to the noble parts; whose malignity a strong liver not enduring, by the strength of the naturall expulsive facultie, will send it into the groines, whereon follow Abscesses, therefore called venereall Bubo's. These, if they returne in againe, and cast not forth matter by being opened, they will, by their falling back into the veins and arteries, infect the masse of the blood by the like tainture, & thence will ensue the *Lues venerea*. Yet this disease may be got by a more occult manner of touch, as by breathing only. For it is not altogether besides reason and experience, that a woman long troubled with this disease, may by importunate and often kissing, transfuse malignity into a child; for the tender and soft substance of a little childe may bee altered, infected, and by little and little corrupted by receiving of filthy, and in their whole kinde malignant vapours. For it is knowne, and now vulgarly believed, that mid-wives by receiving the child of a woman infected with this disease, to have got this affect, the malignity being taken and drawne into their bodies through the pores of their hands by the passages of the veines and arteries. Neither doth it spare any condition, sexe, nor age of men: for, not onely whosoever use copulation, but such as onely lye with them, may bee taken by this virulencie; yea verily, if they onely lye in the sheets or coverings which retaine his sweat, or the virulencie cast forth by an ulcer. The same danger may assaile those who shall drinke in the same vessell after such as are troubled with this disease. For by the impure touch of their lips, they leave a virulent sanies and spittle upon the edges of the cup, which is no lesse contagious in its kinde than the virulencie of leprous persons, or the fume of madde dogs. Wherefore it is no marvell if children nursed by an infected nurse, draw in the seeds of this disease together

Venereall Bubo's returning in againe occasion the *Lues venerea*.

The *Lues venerea* may be got by the only communication of vapours.

How nurses may infect children, and they their nurses.

gether with the milk, which is only bloud whitened in the breasts; or infected sucking children by their hot and ulcerated mouthes, may transfuse this malignity into the body of the nurse, by the rare, loose and porous substance of the dugs which it frequently sucketh.

This following history is very memorable to this purpose. A certaine very good A historie. Citizen of this Citie of Paris granted to his wife being a very chaste woman, that conditionally shee should nurse her owne child of which shee was lately delivered, shee should have a nurse in the house to ease her of some part of the labour: by ill hap, the nurse they tooke was troubled with this disease; wherefore shee presently infected the childe, the child the mother, the mother her husband, and hee two of his children who frequently accompanied him at bed and board, being ignorant of that malignity wherewith hee was inwardly tainted. In the meane while the mother when shee observed that her nurse childe came not forward, but cryed almost perpetually, shee asked my counsell to tell her the cause of the disease; which was not hard to bee done, for the whole body thereof was replenished with venereall scabs and pustles, the hired nurses and the mothers nipples were eaten in with virulent ulcers; also the fathers, and the two other childrens bodies, whereof the one was three, the other foure yeares old, were troubled with the like pustles and scabs. I told them that they had all the *Lues venerea*, which tooke its originall and first offspring by maligne contagion from the hired nurse. I had them in cure, and by Gods helpe healed them all, except the sucking child, which died in the cure. But the hired nurse was soundly lashed in the prison, and should have beene whipped through all the streets of the Citie, but that the magistrate had a care to preserve the credite of the unfortunate family.

CHAP. III.

In what humour the malignity of the Lues venerea resides.

THough in the opinion of many the antecedent cause of this disease be the masse of bloud containing the foure humours, yet I had rather place the matter, and primary, and chief seat thereof in grosse and viscid phlegme infected with the maligne quality of the venereous venome, and from this beginning and foundation, I thinke by a certaine contagious growth it sooner or later infects the other humours, as each of them is disposed or apt to suffer. Of which my opinion there are many arguments, but this chiefly, That by the evacuation of a phlegmaticke humour, whether by the mouth and salivation, or by stooles, urine, or sweate in men of what temper soever, whether cholerick, sanguine or melancholy, the disease is helped or cured. Secondly, for that the excesse of paine is more by night than by day, because then the phlegme bearing sway, severs the *periostium* from the bone, or else offends it and the rest of the membranous and nervous bodies by the acrimony of its malignity. Thirdly, because the patients are hurt by the use of cold things, but usually finde benefit by hot medicines, whither they bee oyntments, plasters, fumigations, or whatsoever else, inwardly taken, or outwardly applyed. Fourthly, for that in venereous pustles, there is found a certaine hardnesse at the roote, though outwardly they make shew of choler or bloud. For being opened, you shall finde them stuffed with a certaine plaster-like and tophous matter, or else with tough phlegme, or viscous pus; whence arise these hard *tophi*, or bony excressences upon the bones, if not from phlegmaticke humours there heaped up and concrete? Fifthly, for that the spermaticke and cold parts doe primarily and principally feeble the harme of this disease. Sixtly, for that the ulcers which over-spread the body by meanes of this disease, admit of no cure, unlesse you first cause sweats. Therefore if the matter of the disease, and such ulcers as accompany it were hot and dry, it would grow worse, and be rather increased by a decoction of *Guajacum*, the roots of *China*, or *sarsaparilla*. Seventhly, because oft-times this disease, the seede thereof being taken or drawne into the body, so lyeth hid for the

Why the paine is worse upon the night than on the day.

This disease sometimes lyes long hid in the body before it shew it selfe.

space of a yeare, that it shewes no signe thereof, which happens not in diseases proceeding from an hot matter, which causeth quick and violent motions. By this it appeareth that the *basis* and foundation of the *Lues venerea* is placed or seated in a phlegmatick humour; yet may I not deny, but that other humours confused therewith may be also in fault, and defiled with the like contagion. For there are scarce any tumours which proceed from a simple humour, and that of one kinde; but as in tumours, so here the denomination is to be taken from that humour which carryeth the chiefe sway.

CHAP. IIIL.

Of the signes of the Lues Venerea.

When the *Lues venerea* is lately taken, maligne ulcers appeare in the privities, swellings in the groines, a virulent strangury runneth oft-times with filthy *sanies*, which proceeds either from the *prostate*, or the ulcers of the *urethra*; the patient is troubled with paines in his joynts, head, and shoulders, and as it were breakings of his armes, legges and all his members, they are weary without a cause, so that neither the foot nor hand can easily performe his duty; their mouths are inflamed, a swelling troubles their throats, which takes away their freedom of speaking & swallowing, yea of their very spittle; pustles rise over all their bodies, but chiefly certaine garlands of them engirt their temples and heads; the shedding or losse of the haire, disgraceth the head and chin; and leanenesse deformeth the rest of the body; yet all of these use not to appeare in all bodies, but some of them in some. But the most certaine signes of this disease are, a callous ulcer in the privities, hard and ill conditioned, and this same is judged to have the same force in a prognosticke, if after it be cicatrized, it retain the same callous hardnesse; the Bubo's, or swellings in the groines to returne backe into the body without comming to suppuration, or other manifest cause: these two signes, if they concur in the same patient, you may judge or foretell that the *Lues venerea* is either present, or at hand; yet this disease happeneth to many without the concurrence of these two signes, which also bewrayeth it selfe by other manifest signes, as ulcers and pustles in the rest of the body, rebellious against medicines though powerfull, and discretely applyed, unlesse the whole body bee annoynted with *Argentum vivum*. But when as the disease becommeth inveterate, many become impotent to venery, and the malignity and number of the symptomes encrease, their paines remaine fixed and stable, very hard and knotted *tophi* grow upon the bones; and oft-times they become rotten and foule, as also the hands and feete by the corruption of salt phlegme are troubled with chops or clefts, and their heads are seized upon by an *ophiasis* and *alopecia*; whitish tumours with roots deepe fastned in, arise in sundry parts of the body, filled with a matter like the meate of a chesnut, or like a tendon; if they be opened they degenerate into divers ulcers, as putride, eating, and other such, according to the nature and condition of the affected bodies. But why the paines are more grievous on the night season: this may bee added to the true reason wee rendred in the precedent Chapter; first for that the venereous virulencie lying as it were asleepe is stirred up and enraged by the warmnesse of the bed and coverings thereof; Secondly, by reason of the patients thoughts which on the night season are wholly turned and fixed upon the onely object of paine.

The most certaine signes of the *Lues venerea*.

Two other causes of the excessive of paine in the night.

CHAP. V.

Of Prognosticks.



If the disease be lately taken, associated by a few symptomes, as with some small number of pustles, and little & wandring paines, and the body besides bee young and in good case, and the constitution of the season bee good and favourable, as the spring, then the cure is easie, and may bee happily performed. But on the contrary, that which is inveterate and enraged by the fellowship of many and malignant symptomes, as a fixed paine of the head,

The signes of a curable Lues Venerea.

knots and rotnenness of the bones, ill natured ulcers in a body very much taken away and weake, and whereof the cure hath beene already sundry times undertaken by Empyricks, but in vaine; or else by learned Physicians, but to whose remedies, approved by reason and experience, the malignity of the disease and the rebellious virulency hath refused to yeeld, is to be thought uncurable, especially, if to these many evils, this bee added, that the patient bee almost wasted with a consumption and hectick leanenness, by reason of the decay of the native moisture. Wherefore you must onely attempt such by a palliative cure; yet bee wary here in making your prognosticke: for many have beene accounted in a desperate case, who have recovered; for by the benefit of God and nature, wonders oft-times happen in diseases. Young men who are of a rare or laxe habit of body are more subject to this disease, than such as are of a contrary habit and complexion. For as not all who are conversant with such as have the Plague, or live in a pestilent aire, are alike affected; so neither all who lye or accompany with such as have the *Lues venerea*, are alike infected or tainted. The paines of such as have this disease, are farre different from the paines of the Gout. For those of the Gout returne and torment by certaine periods and fits, but the other are continuall and almost alwaies like themselves; Gouty paines possesse the joynts, and in these condense a plaster-like matter into knots; but those of the Pocks are rather fastened in the midst of the bones, and at length dissolve them by rotnenness and putrefaction. Venereous ulcers which are upon the yarde are hard to cure, but if being healed, they shall remaine hard and callous, they are signes of the disease lying hidde in the body.

The signes of an uncurable one.

How these pains differ from those of the gout.

Generally, the *Lues venerea* which now reigneth is farre more milde and easie to bee cured than that which was in former times, when as it first began amongst us: besides, each day it seemeth to bee milder than other. Astrologers think the cause hereof to bee this, for that the coelestiall influences which first brought in this disease, in successe of time by the contrary revolutions of the Starres, lose their power and become weake; so that it may seeme somewhat likely, that at length after some few yeares it may wholly cease; no otherwise than the disease termed *Mentagra*, which was very like this in many symptomes, and troubled many of the Romans in the raigne of *Tiberius*; and the *Lichen*, which in the time of *Claudius* (who succeeded *Tiberius*) vexed not onely *Italy*, but all *Europe* besides. Yet Physicians had rather take to themselves the glory of this lesse raging disease, and to referre it to the many and whollome meanes, which have beene invented, used and opposed thereto by the most happy labours of noble wits.

The *Lues venerea* becomes more gentle than formerly it was.

CHAP. VI.

How many, and what meanes there are to oppugne this disease.

Why the decoction of *Guajacum* is not sufficient to oppugne the disease.



Any sorts of remedies have beene found out by many to oppugne and overcome this disease. Yet at this day there are onely foure which are principally used. The first is by a decoction of *Guajacum*; the second by unction; the third by emplaisters, and the fourth by fumigation; all of them by *Hydrargyrum*, the first excepted. Yet that is not sufficiently strong and powerfull; for experience hath taught, that the decoction of *Guajacum* hath not sufficient strength to extinguish the venome of the venereous virulency, but onely to give it ease for a time; for because it heates, attenuates, provokes sweate and urine, wastes the excrementitious humours by drying them, it seemeth to cure the disease, for that thereupon, for some time, the paine and all other symptoms seeme more remisse; but these endeavours are weake and deceitfull, as whereby that only which is more subtle in the humours in fault, is exhausted and dispersed by sweate. But *Hydrargyrum*, as a certaine higher power, containes therein all the power of *Guajacum*, yet much more excellent and efficacious; for besides that it heats, attenuates, cuts, resolves and dryes, it provokes sweat and urine, and besides it expels noxious humours upwards and downewards, by the mouth and stoole. By which evacuations not onely the more subtle, but also the more grosse and foeculent excrements, wherein the seat of this disease is properly fixed, are dispersed and evacuated; by which the Physician may bee bold to assure himselfe of certaine victory over the disease. But after the use of the decoction of *Guajacum*, fresh paines and knots arise by the reliques of the more grosse and viscus humours left in the cavities of the entrailes; but *Hydrargyrum* leaves no reliques behind it.

Hydrargyrum is sufficient to overcome the disease.

CHAP. VII.

How to make choice of the wood Guajacum.

The faculty.



That is preferred before the rest, which is of a great logge, of a dusky colour, new, gummy, with a fresh strong smell, an acride and somewhat biting taste, the barke cleaving very close to the wood. It hath a faculty to heat, rarifie, attenuate, attract, to cause sweate, and move urine, and besides by a specifick property to weaken the virulency of the *Lues Venerea*. There are three substances taken notice of in this wood: the first is the barke, the other is a whitish wood which is next to the barke, the third is the heart of the wood, that is, the inner, blackish, and more dusky part thereof. The barke is the more dry, wherefore you shall use it when as you would dry more powerfully; the middle substance is more moist, because it is more succulent and fat; that which lyeth betweene both is of a milde temper. Wherefore the two last are more convenient for delicate natures and rare bodies, which require lesse drying. Furthermore, the barke must be given to dense and strong natures, that by the more fierie force thereof, the humours may be made more fluide, and the passages of the body more passable. But I would here bee understood to meane such barke as is not putride and rotten with age, to which fault it is very subject, for that long before it bee shipped by our people, the wood lyeth in heapes upon the shore in the open aire, untill they can finde chapmen for it; which, when it is brought aboard, it is stowed in the hold or bottome of the ship, where beneath by the sea through the chinkes of the bords, and above by the mariners, it usually gathereth much dirt. When it is brought hither to us, it is bought and sold by weight, wherefore that it may keep the weight, the Druggists lay it up in vaults and cellars under ground, where the surface thereof bedewed with much moisture can scarce escape mouldinesse and rottenesse. Wherefore I doe not like to give the decoction either of the barke or wood which is next thereto to sicke people.

The parts.

The hot and fiery faculty of the barke.

CHAP. VIII.

Of the preparation of the decoction of Guajacum.

First you must have your *Guajacum* shaved into small pieces, and to every pound of the shavings, adde of faire water eight, ten, or twelve pints, more or lesse as the nature of the party, and condition of the disease shall seeme to require, according to the rule of the formerly mentioned indications. Let the water be hot or warme, especially if it be in winter, that so it may the more easily & throughly enter into the body of the wood, & draw into it selfe the faculties thereof in the space of twenty foure houres, wherein it is macerated; then boyle it *in balneo*, to avoyd *empyrenma*, or taste of fire, which it will contract by boyling it over a hot fire. Yet some nothing regard this, but thinke the patient sufficiently served, if they make a decoction in an earthen pot well glased, over a gentle fire, so that no part of the liquor may runne over the mouth of the vessel, for that thus so much of the strength of the decoction might vanish away. Howsoever it be made, let it be boyled to the consumption of half, a third, or fourth part, as the nature of the patient, & disease shall seeme to require. There be some who mixe divers simples therewith, which have an occult and proper sympathy with that part of the body which is principally hurt by the disease, which at the least may serve in stead of a vehicle to carry the faculties of the decoction thither where the disease most reigneth. Others adde thereto purging medicines, whole judgement I cannot approve of, for that I thinke it is not for the patients good to attempt two evacuations at once, that is, to expell the humors by sweat by the habit of the body, and by purging by the belly; for that as much urine, so also much sweat shewes little evacuation by stoole. For these two motions are contrary, which nature cannot brooke at once. For purging drawes from the circumference to the Center, but sweat runs a quite contrary course, and this is the opinion of many & great physicians. This first decoction being boyled out, & strained the like quantity of water shall be put to the stuffe, or masse, that so being boyled again without any further infusion, & strained, with the addition of a little cinamon for the strengthening of the stomacke, the patient may use it at his meales, and betweene his meales, if he be dry, for his ordinary drinke. The quantity of the first decoction to be taken at once, ought to be some five or sixe ounces, and it shall be drunke warm, that so it may be the sooner brought into action, and lest the actuall coldnesse should offend the stomacke; and then the patient being well covered, shall keep himself in bed, and there expect sweat, which if it come slowly on, it shall bee helped forwards with stone bottles filled full of hot water, and put to the soles of the feet. If any parts in the interim shall bee much pained, they shall bee comforted by applying of swines bladders halfe filled with the same decoction heated. Neither will it bee unprofitable before the decoction bee drunke, to rubbe over all the body with warme linnen clothes, that by this meanes the humours may be attenuated, and the pores of the skinne opened. When he shall have sweat some two houres, the parts opposite to the grieved places, shall first be wiped, then presently, but more gently, the grieved parts themselves, lest a greater conflux of humours flow thereto. These things being done, he shall keep himself in bed, shunning the cold aire untill he be cooled and come to himselfe againe, some two houres after, hee shall so dine, as the disease and his former custome shall seeme to require; sixe houres after, betaking himselfe to his bed, hee shall drinke the like quantity of the decoction, and order himselfe as before. But if he be either weake, or weary of his bed, it shall bee sufficient to keepe the house without lying downe; for although he shall not sweate, yet there will be a great dissipation of the vapours, and venenate spirits, by insensible transpiration; for the *Lues venerea* by the onely communication of these, often times catcheth hold, and propagates it selfe in lying with a bedfellow tainted therewith. But as it is requisite to have let blood, and purged the body by the advise of a physician, before the taking of the decoction of *Guajacum*; so whilest hee doth take it, it much conduceth to keepe the belly soluble

The proportion of the *Guajacum* to the water.

Why the decoction ought to be performed with a dry heat.

Whether it bee fit to adde purges to a decoction of *Guajacum*.

Hip. aph. ult. sect. 6.

How, and in what quantity this decoction must be taken.

How to dry the sweat of the body.

(which

How long this
decoction must
be used.

The manner of
diet.

To whom, and
what manner of
wine may be al-
lowed.

The descrip-
tion of China.

The preparati-
on.

Of *sarsaparilla*.

(which is much bound by the heat & driness of such a drink) and to preserve the purity of the first veins by a glyster, or laxative medicine taken every fifth, or sixth day. But for the use of it, we must warily observe, taking indication not onely from the malignity, and contumacy of the disease, but also from the particular nature of the patient; for such as have their body wasted by heat and leanenesse, and their skinne dry and scally (whence you may gather a great adustion of the humours, and, as it were, a certaine incineration of the habit of the body) must more sparingly make use of these things, but rather temper the body by humecting things taken inwardly, and applyed outwardly, as bathes, ointments without quicksilver, and other such like things. And then a very weake decoction of *Guajacum* shall be used for a few dayes before your unction with Quicke-silver. A more plentifull diet, as it drawes forth the disease, which of its owne nature is long, so a more sparing and slender diet makes the ulcers more rebellious and contumacious, by a hecticke driness.

Therefore a middle course must be kept, and meats made choice of which are fit, and naturally engender good and laudible juice in the body. For it is not only great ignorance, but much more cruelty, to goe about to conteine all patients without any difference, within the strait allowance of four ounces of Ship-bisket, and twelve damaske prunes: for I judge it farre better to diet the patient with Lambe, Veale, Kid, Pullets, fat Larkes, and Blacke-birds, as those which have a farre greater familiarity with our bodies, than Prunes and the like Junkets. Let his bread be made of white wheat, well leavened, neither too new, or tough, neither too old or hard. Let his drinke be made of the masse, or strainings of the first decoction of *Guajacum* boiled with more water, as was formerly mentioned; yet if there arise any great weakenesse of the faculties, you may permit the use of some little wine, drinking especially before each meale a cup of the last mentioned decoction. Let him avoyd sleepe presently after meat, for so the head is filled with grosse vapours. Passions or perturbations of the mind must also be avoyded, for that by these the spirits are inflamed and dissipated; all delights of honest pleasure are to be desired, but ventry wholly avoyded, as that which weakens all the nervous parts. Many in stead of a decoction of *Guajacum*, use a decoction of *China*. Now this *China* is the roote of a certain rush, knotty, rare, & heavie, when it is fresh, but light when it is waxed old; it is also without smell, whence many judge it voyd of any effectuall quality, it is brought into use out of *India*, it is thus prepared, it is cut into thin round slices, boyld in fountaine or river water, and is given to patients to drink morning and evening after this manner. *R. rad. chin. in talcol. sect. 3 ii. aquæ font. lb. xii. infundantur per hor. xii. & coquantur ad consumption. tertia partis.* Let him take 3 vi. in the morning, and so much at night; let him expect a sweat in his bed: a second decoction may be made of the masse remaining of the first, but with a lesse quantity of water put thereto, which also by longer boyling may draw forth the strength remaining in the masse, & be used at meals for ordinary drink. There are some who make a third decoction therof, but that is wholly unprofitable and unusefull. *Sarsaparilla* is prepared also just after the same manner.

CHAP. IX.

Of the second manner of curing the Lues venerea, which is performed by friction, or unction.

When the body must be prepared with humecting things before unction.



He cure of the *Lues venerea* which is performed by unction and friction is more certaine, yet not in every kinde, condition and season thereof. For if the disease be inveterate from an humour, tough, grosse, viscous, and more tenaciously fixed in the solid parts, as you may gather by the knotty tumours of the bones; for then we are so farre from doing any good with a friction used at the first, that on the contrary wee bring the patient in danger of his life, unlesse we shall have first prepared the humour to expulsion, by emollient & digesting things first used. But if it be lately taken with moveable paines, pustles, and ulcers in the

the jawes, throate, and privie parts, then may it be easily cured without such preparatives, especially if the humour be sufficiently obedient, and as it were prepared of it selfe, and its owne nature. Therefore first using generall medicines, you may afterwards come to use the unction with *Hydrargyrum*.

CHAP. X.

Of the choice, preparation and mixing of Hydrargyrum.



Hydrargyrum which is cleere, thinne, white and fluide, is the best: on the contrary, that which is livid, and not so fluide, is thought to be adulterated by the admixture of some lead. That it may be the purer, straine it through some sheepes leather, for by pressing it, when it is bound up, it passeth through by its subtilty, and leaves the filth and leaden drosse behind it on the inside. Then it may be boyled in vinegar with sage, rosemary, time, chamomile, melilote, and strained againe, that so many waies cleansed, it may enter into ointments and plaisters. To kill it more surely, it shall bee long wrought, and as it were ground in a mortar, that it may bee broken and separated into most small particules, that by this meanes it may not bee able to gather it selfe into the former body: to which purpose you may also adde some *sulphur*, or sublimate, as we shall shew hereafter. It is most usually mixed with hogs grease, adding thereto some oyle of turpentine, nutmegs, cloves, sage, and *Galens* treacle. If a *Leucophlegmatia* together with the *Lues venerea* affect the body, then hot, attenuating, cutting, and drying things shall be added to the medicine, which shall be provided for unction; the same shall be done when as we would have it to enter into the substance of the bones. But if the patient be of a cholericke temper, and his blood easie to be inflamed, you shall make choice of lesse hot, attractive and discussing things. As when the body shall be replenished with knotty and scirrhus tumours, or squalide by excessive drynesse, then shall emollient and humecting things bee mixed therewith. But that such ointments may have a better consistence, I use to adde to each pound thereof, four, five, or sixe yolkes of hard egges. Therefore this shall be the forme of the ointment called Vigors. *Rx. axung. porci, lb i. olei chamem. anethi, mastich. & laurini, an 3 i. styrac. liquid. 3 x. rad. enula, camp. parum trita, & ebuli, an. 3 iii. pul. euphorb. 3 lb. vini oderif. lb i. bulliant omnia simul usque ad consumptionem vini, deinde colentur; colatura adde lythargyrea auri, 3 vi. thuris, mastich. an. 3 vi. res. pini, 3 i lb. tereb. venet. 3 i. argenti vivi, 3 iv. cera alba, 3 i lb. liquefactis oleis, cum cera incorporentur omnia simul, fiat linimentum ad usum.* Or else, *Rx. argenti vivi preparati, 3 vi. sublimati, 3 lb. sulphuris vivi, 3 lb. axung. porci, salis expertis, lb i. vitellos ovorum sub cineribus coctorum, nu. iii. olei teribinth. & laurini, an. 3 ii. theriac. vet. & methridat. 3 lb. fiat linimentum in ar. tis est.* You shall compose it thus, first the *sublimatum* and *sulphur* shall be finely powdered, then some part of the *Argentum vivum* and hogs grease put to them, then presently after, some of the hard yolkes of egges, continually and diligently stirring and mixing them all together. All these being well incorporate, adde some more *argentum vivum*, hogges grease, and yolks of egges, and incorporate them with the former; at the last adde the oiles, then Treacle, and Mithridate, and so let them all be beaten together for a whole daies space, and thus you shall make an ointment of a good consistence, which I have often used with good successe. Yet the hogges grease shall be first boyled with the hot herbs good for the sinewes, as sage, rosemary, time, marjerome, lavender, and others which the season affoord. For so the *axungia* acquires a more attenuating faculty, and consolidating of those parts which the *Lues venerea* afflicts. Besides, when unguents are made for this purpose, that such virulency may be drawne from within outwards, by sweats and transpiration through the pores of the skinne, no man need doubt, but that they ought to be furnished with relaxing, rarifying, and attractive faculties. But *axungia*, besides that it is very fit to kill the *argentum vivum*, it also relaxeth and mollifieth. Now *Oleum laurinum*, de *spica*, *rutaceum*, rarifie, digest, and assuage paine. Turpentine also extinguishteth

How to kill *argentum vivum*.

What to mixe therewith.

An unction with *argentum vivum*.

Another.

How to make it

How to prepare the hoggs grease; before you mixe the *argentum vivum* therewith.

guisheth, and bridleth the *argentum vivum*, moderately heates, resolves and strengthens the nervous parts. But *argentum vivum* is the proper antidote of the *Lues venerea*, as that which cures it howsoever used, drying by the subtilty of the parts, and provoking sweat. Verily Treacle and Methridate somewhat conduce to retund the virulency of this disease, but unlesse *argentum vivum* assist as a ferret to hunt, and an alexiterium to impugne the disease, they can doe no great matter.

CHAP. XI.

How to use the Unction.

Cold most
hurtfull to such
as are troubled
with the *Lues*
venerea.



He body and humours apt to cause or nourish a *plethora* or inflammation, being prepared by digestive syrups, and evacuated by purging and bleeding as is fitting, according to the direction of some Physitian, the patient shall be shut up in a parlour or chamber, hot either by nature or art, & free from cold blasts of wind. For cold is most pernicious in this disease, both for that it hurts the nervous parts, already ill affected by reason of the disease, as also for that it lessens the efficacy of medicines. Wherefore many doe ill in this, who, whether in winter or summer, anoint their patients in a large room, exposed on every side to the winds. They deale somewhat more wisely, who put a cloath fastened like halfe a tent presently behinde the patient, though anointed by the fire side, so to keep away the cold aire from him. Yet it is safest to set, and anoint the patient either in a little roome, or else in some corner of a large roome, separated from the rest of the room by some hangings, and building a stove, or making some fire therein, for so he may stand or sit as he best likes, the longer, and with the lesse offence, and be equally heated on every side, whereas such as are anointed in a chimney by a fires side cannot but be heated unequally, being ready to burne on the one side, whilest the other is cold, which motions are contrary and hurtfull to that we require: besides, if the patient shall bee weake, hee cannot stand and endure the heat of the fire. Or if hee bee shamefac't, he will bee unwilling to shew all his body at once naked to the Surgeon, but he may without any harme, and with modesty, lying on a bed in a little roome, wherein a stove is made, have all his limmes anointed about the joints, and presently bound up, either with stoupes, or carded cotton, or browne paper.

CHAP. XII.

What cautions to be observed in rubbing or anointing the patient.

The patient, if
it may be con-
veniently done,
must be anoin-
ted fasting.



In what places
the body must
be anointed.

He shall be anointed or rubbed over with the ointment in the morning, the concoction & distribution of the meat being perfected, which functions otherwise would not be well performed, the powers of nature being distracted into severall operations. Yet if the patient shall be weak, you may some houre before the unction, give him some gelly, the yolk of an egge, or some broth made of meate, boiled to pieces, but very sparingly, lest nature, intent upon the concoction of solid meats, or in great quantity, should bee drawne away from that which we intend. At first let onely the joints of the limmes be anointed, as about the wrists, elbowes, knees, anckles, & so of the feet. But afterward, if the patient shall be more strong, and a greater commotion of the humours and body seem necessary, the emunctories of the principall parts may also be anointed, and the whole spine of the backe; yet having much care, and alwaies shunning the principall and noble parts, lest we should doe as those butcherly Emperickes doe, who equally, and in like manner daube and rubbe over all the body, from the soles of the feete, to the crowne of the head: moreover, diligent regard must bee had of those parts, which are seized upon by the symptomes of this disease, that they may bee more anointed, and that it may be more thoroughly rubbed in. Yet you must al-

waies

waies begin your anointing or rubbing at those parts which are lesse offended, lest the humours should be drawne in greater measure to the grieved part. And as gentle frictions do not sufficiently open the pores of the skin, so more strong and hard ones shut them up, cause paine, and more plentifully attract the morbifick matter. Wherefore it will be more convenient to use moderate frictions, taking indication from the strength of the patient, as that whereto we must still have the chiefe regard. There is also another thing wherto the physitian & Surgeon must diligently attend, as that, which if it be not carefully prevented, will either hasten the death of the patient, or make him subject to a relapse; that is, the quantitie of the remedies and unctions, and the number of the frictions. Which consideration, together with that which is of the degrees of the temperaments of the whole body, and each part thereof, much troubles and exerciseth the mindes of good Physitians, and maketh the art conjecturall, it is so farre from being attained to by Empericks. Yet we must endeavour by method and reason, that by the rule of indications so frequently mentioned, we may attaine to the knowledge thereof, as neare as may bee. For to have perfect knowledge hereof, and to say that those need only foure, others five, and other some fixe, more or fewer frictions at the beginning, which Emperickes commonly doe, is a thing both impossible and vaine. All these must bee changed and ordered according to the malignity and continuance of the disease, and the condition of the affected bodies. Verily wee must so long use frictions and unctions, untill the virulent humours bee perfectly evacuated by spitting and salivation, by stoole, urine, sweat or insensible transpiration. Which you may understand by the falling away & drying up of the pustles and ulcers, and the ceasing of the paines and other symptoms proper to this disease. In many, by reason of the more dense and compact habit of the body, nature is more slow in excretion. Yet I have learnt by long experience that it is best to anoint and chafe such twice in a day, to wit, morning and evening, fixe houres after meate. For so you shall profit more in one day, than by the single frictions of three dayes. But on the contrary, I have often, and with good successe, rubbed over but each other day more rare and delicate bodies, giving them one or two dayes rest to recollect their strength; which by the too much dissolution of their spirits becomming too weak, were not sufficient to expell the relicks of the morbifick matter. And certainly about the end of the appointed friction, especially when as the patients begin to fluxe at the mouth, the bodies, together with the noxious humors are made so fluid by the means of the precedent frictions, that one friction is then more efficacious, than two were at the beginning. Therefore as *Galen* bids, when as the disease is great, and the strength of the patient infirme, that wee should part our blood lettings, and draw a little and a little at once, so also here when as we shall observe nature stirred up, and ready bent to any kinde of evacuation by the mouth, stoole, or other like, you ought not to use any unction or friction oftner than once in a day, yea certainly it will bee better to intermit for some few dayes. For thus *Massa* reports, that there was a certaine man who almost wasted with a consumption, being continually afflicted with the most grievous paines of this disease, & reputed in a desperate case by other physitians, was notwithstanding at length recovered by him, when as hee had anointed him thirty seven times, putting some time between for the recovery of his strength. I my self have observed others, who thus, by the interposition of one or two dayes, being rubbed over some fifteene or seventeene times, have perfectly recovered. Wherefore you must take this course in resolved and weake bodies, yet in the interim must you have a care, that the frictions bee not too weak, and so few, that the morbifick cause may not be touched to the quick: for in this kinde of disease nature doth not of it selfe endeavour any Crisis, or excretion; it requires the auxiliary forces of medicines, by whose assistance it may expell all the malignity. These are signes of such a Crisis, either at hand, or already present, if the patient be so restlesse, so loath all things, that hee cannot remaine in one place either standing or lying, he can neither eat nor drinke, if he be oppressed with a continuall wearinesse, almost ready to swoone, yet have a good and equall pulse, and gripings in his belly afflict him with bloody & viscous dejections, untill at length nature after one or two dayes, portion of the morbifick matter being spent, be somewhat

Where to begin the unction.

What it is that maketh the art of physick conjecturall.

Who must be rubbed over once, who twice in a day, and who but every other day.

Lib. de vene. pect.

Nature is not sufficiently able to expell the virulent matter. Signes that the crisis is nigh.

Inconvenien-
ces following
upon immoder-
ate unctions.

freed, and all paines and symptomes so much abated, as the excretions have proceeded. But whereas medicines are not sufficient in number or strength, there follows an unperfect *Crisis*, which leaves behind it some relicks of the morbidick matter, which like leaven do so by little & little infect the whole mass of the humors, that oft-times after ten years space, the disease riseth as out of an ambush, or lurking hole, and becomes farre worse than before. But wee must in like maner have a care lest these medicines, that are either given inwardly, or applyed outwardly, be not too strong: for by causing such colliquation of the radicall moisture and solid parts, many have been brought into an incurable consumption. In others sordid and putride ulcers have thence arisen in the mouth, which having eaten a great part of the palate and tongue, have degenerated into a deadly *Cancer*. In others hereupon the tongue hath so swelled up, that it hath filled the whole capacity of the mouth, so that it could not be bended to any part of the mouth for chawing, whereupon they have by little and little beene famished. In other some there hath beene caused so great colliquation of humours, that for a whole moneth after, tough and filthy flaver hath continually flowed out of their mouths. Other some have the muscles of their jawes relaxed; others troubled with a convulsion, so that during the rest of their lives they can scarce gape. Others by losing a portion of their jaw, have lost some of their teeth. But you must not alwaies so long anoint and chafe the body, untill a fluxe of the mouth or belly appeare. For you may finde sundry persons, who, if you should anoint or rub them to death, you cannot bring them to fluxe at the mouth; yet these will recover notwithstanding, excretion being made either by insensible transpiration, or evacuation of urine, or some gentle fluxe of the belly, either procured by art, or coming of it selfe. In which case I have observed that many have received much good by a purging decoction of *Guajacum*, administred according to the quantity of the peccant humor, and given for some dayes in the morning, adding thereto white wine, if the body abounded with tough and viscid humours. Dysenteries, or bloody-fluxes caused by unctions, may be helped by Glysters, wherein much hogsgrease is dissolved to rotund the acrimony caused by the medicine and humor which nourisheth the Dysentery. Also new Treacle dissolved in new milke, is thought wonderfully to mitigate this symptome.

For what persons a purging decoction of *Guajacum* is good.
The cure of a Dysentery occasioned by too strong friction.

CHAP. XIII.

Of the third manner of Cure, which is performed by cerates, and emplasters, as the substitutes of unctions.



Or that sundry by reason of the name, abhorre the use of friction, which is performed by the forementioned ointments, therefore there is found out another manner of cure, by cerates and emplasters, as substitutes of Frictions, but that usually is somewhat slower: for which purpose it is not needfull onely to use the things which are described by *Vigo*, but you may also devise other, which are more or lesse anodyne, emollient, attenuating, discussing, or drying, according to the condition of the present disease, symptomes, humors and patient, never omitting *Hydrargyrum*, the onely antidote of this disease. Such emplasters mitigate paines and knots, and resolve all hardnesse, and are absolutely very effectually, for continually sticking to the body, they continually operate. Wherefore they are of prime use in relapses of this disease, or when the humours are thicke and viscous, or otherwise lye deepe in the body, and very difficult to roote out. But for that they worke more slowly oftentimes, such as use them are forced at length to use some frictions to stimulate nature, and cause the speedier excretion. Yet in some whose bodies and humours have beene fluid, either by nature or art, the applyed emplasters have in three dayes space procured evacuation sufficient for the disease, so that if they had not beene taken away, they would have caused a colliquation, like that which we lately mentioned in too violent friction. Wherefore you shall

The cure by emplasters more slow.

In what case they are chiefly usefull.

shall use the like discretion in taking off these, as you use in your unctions and friction. In stead of *Emp. de Vigo*, this following may be fitly used. *Rx. massa emp. de melib. & oxycroci, an. ℥ss. argenti vivi extin. 3 vi. oleo laurino, & de spica, reducantur ad formam emplastri.* These plasters must be equally spread upon leather, and layd upon the same places of the joints, as were formerly mentioned in the cure by frictions. Yet some there bee, who cover with the plaster all the arme, from the hand even to the shoulder, and all the legge, from the toppe of the knee, even to the ends of the toes, which thing I doe not disallow of, if so bee that the places of the joints bee covered over with a thicker plaster. They must bee left sticking there so long, untill nature be stirred up and provoked to cause excretion of the virulent humours. Yet if in the interim, great itching shall arise in the parts, you may take them off so long untill the parts shall be fomented with a decoction of the flowres of chamomile, melilote, red roses, and the like, made in wine, to discusse that which caused the itching, and then you may lay them on againe. Some, to hinder the rising of any itch, lay not the bare plaster to the part, but cover it over with sarcenet, so to keepe it from sticking, and thus intercept the transpiration of the part, the cause of itching. They shall bee stronger or weaker, and lye to the part a longer or shorter space, as long as the indications, so often formerly mentioned, shall seem to require. The effects of emplasters are the same as of frictions, for they cause excretion, one while by insensible transpiration, otherwhiles by a *Diarrhea*, or fluxe of the belly, sometimes by urines, but most frequently (which *Crisis* is also most certaine) by salivation. Sordide and virulent ulcers often breed in the mouth, tongue, pailate, and gummes by salivation, by reason of the acrimony of the virulent humours adhering to the sides of the mouth: to hinder the growth of these, many inject glysters made of emollient things, especially at the beginning of the salivation, so to draw downwards the humours forcibly flying up in greater quantity than is fit, although the part it selfe may endure them.

The description of an emplaster.

What excretion best in this disease.

There are also some, who to the same end give a purging medicine at the very time when as the humours are ready to move upwards, the which I thinke is not a safe course. The cure of such ulcers is farre different from the cure of others. For they ought by no meanes to bee repercussed or repelled, how enflamed soever they be, but onely to bee mitigated by anodyne gargarismes, so onely to lessen the heat, and that by this frequent washing of the mouth, you may hinder the sticking or furring of viscid humours to such like ulcers. A decoction of barley, cowes milk warm, held and gargled in the mouth, the mucilages of the seeds of mallows, marshmallows, *psilium*, lettuce, line extracted in the water of barley, mallows, and pellitory of the wall, are good for this purpose; for thus the ulcers become more milde, and the tenacity of the adherent humours is loosed. You must at the first beware of strong detergent medicines, for almost all such have acrimony joynd with them, which will encrease the pain, but chiefly in the state of the disease: for so, the ulcers gently cleansed by frequent gargling, would become worse by the use of acride things. Therefore it shall be sufficient to make use of the forementioned medicines, so to hinder the encrease of the filth, and inflammation of the ulcers, if so bee that such ulcers be not too exceeding maligne and burning. For if it shall happen either by the powerfull efficacy of the applied plasters, or by the violence of nature in its motion of the ill humours upwards, that such store of viscid, and grosse humours are carryed to the mouth, that it wants little, but that the part it selfe is over-ruled by the morbifick matter, so that by the violence and continuance of the fluxe, the mouth and jawes become so swelled, that a gangrene is to be feared, by hindering the entrance of the spirits, and extinguishing of the native heat of these parts. In this case wee are forced to leave the proper cure for to withstand the accidents, and for this purpose we use restrictive & repelling things, such as are barley water, plantain, night-shade, knot-grasse, shepherds Purse, &c. with syrupe of roses, violets, quinces, berberies, pomegranates, &c. also such are the mucilages and decoctions of the seeds of lettuce, *psilium*, quinces, plantaine, cucumbers, melons, white poppy, henbane, in the waters of roses, plantaine, night shade, water-lillies, wood bine, &c. Also it is convenient to procure sweats by stoves, or the application of any hot and

To avoyd the ulcers of the mouth.
To cure them.

Restrictive & repelling gargarismes.

To dry the ulcers of the mouth.

Manner of diet when the mouth is ulcerated.

To make their drinke nourishing.

dry things; for thus the humours which run forth of the vessels into all the surface of the body, are diverted. But when as the course of the humours running to the mouth, is beginning to stoppe, and the tumours and ulcers begin to lessen, then nothing hinders, but that we may use gently detergent things, as *syr. rosarum siccarum*, *mel rosatum*, *Diamoron*, *Dianucum*, and the like. But when it is time to dry the ulcers, they may be lightly touched with alome water, or with *aqua fortis*, such as goldsmiths have used for the separation of mettals. They may also frequently use drying gargarismes made with astriction of the waters of roses, plantaine, night-shade, shepheards purse, knot grasse, and dogges tongue, boiling therein *balauſtia*, *ros. rub. myrsil.* *sumach.* *alumen.* *acacia.* *berber.* *galla.* *malicor.* and the like. During the time of fluxing or salivation you must diet and feed the patient with liquid meats, and those of good juice, and easie digestion, for that then he can neither chaw, swallow, nor digest hard things. For nature wholly intent upon the excretion of the noxious and peccant humours, as also weakened by the bitterneſſe of paine, watchings, and unquietneſſe, and consequently a great resolution of the spirits, cannot insist powerfully upon the worke of concoction. Therefore he shall be fed with reare new layd egges, caudles of the same, barley creames, culeſſes made of a decoction of knuckles of veale, and a capon, and gellyes, and with these in small quantity, but frequently administred, alwaies gargling his mouth before hee eate. For his drinke he shall use a decoction of *Guajacum* aromatized with a little cinamon, but if any desire that the drinke shall become nourishment, for that the patients cannot feed on more solid meats, you may give them old wine, claret and thinn, mixed with some barley water. Some there are who steep some crummes of pure manchet in the aforesaid wine, and then presse it out, but yet so, that there may some part of the bread remain therein, which may make it more nourishing, and lesse sharpe or acride. Others steepe bread hot out of the oven, in wine, for the space of a night, then they distill it all over in *balneo Mariae*; the liquor which first comes over is more strong and hot, but that which flowes out afterwards, more milde, and such as the patient may use to mixe with his wine without any danger, for his better nourishment, and the recovery of his strength.

For to refresh the spirits in fear of fainting, Muskedine, Hippocras, rose vinegar, and the like, put to the nose to smell to, will be sufficient, unlesse peradventure the patient should naturally abhorre such things, for so they would rather deject the powers and spirits. In the interim you must have care of the belly; that you keep it open by gentle and emollient glysters.

CHAP. XIII.

Of the fourth manner of curing the Lues venerea.

The hurt that followes upon fumigations.

What fumigations good.



Some have devised a fourth manner of curing the *Lues venerea*, which is by *suffitus* or fumigations. I doe not much approve hereof, by reason of sundry maligne symptomes which thence arise, for they infect and corrupt by their venomous contagion, the braine and lungs, by whom they are primarily and fully received, whence the patients during the residue of their lives have stinking breaths. Yea many while they have beene thus handled, have beene taken hold of by a convulsion, and a trembling of their heads, hands, & legges, with a deafenesse, apoplexie, and lastly miserable death, by reason of the maligne vapours of sulphur and quicksilver, whereof *cinnabaris* consists, drawne in by their mouth, nose, and all the rest of the body. Wherefore I can never approve the use of such fumigations which are to bee received in fumes by the mouth and nostrills for to work upon the whole body; yet I doe not dislike of that, which is undertaken for some one part onely, as to dry up ill conditioned ulcers, which so affect it, that they cannot bee overcome by any other meanes, or for to disperse or digest knots, or to resolve fixed paines, otherwise unmoveable. These fumigations by reason

son of the admixture of *Argentum vivum* have an attenuating, cutting, resolving, and colliquating faculty. Those who prepare these fumigations for the cure of the whole disease and body, take this course. They put the patient under a tent or canopy made close on every side, lest any thing should expire, and they put in unto him a vessell filled with hot coales, whereupon they plentifully throw *Cinnabaris*, that so they may on every side enjoy the rising fume, just after the same manner as Farriers use to smoake their horses for the glanders: they repeat this every day so long, untill they begin to fluxe at the mouth. The principall matter or basis of such fumigations, as we have already noted, is *cinnabaris* consisting of sulphur and *argentum vivum* mixed together; there is added also, *radix ireos flor. thus, olibanum, myrrha, juncus odoratus, assa odorata, mastiche, terebinthina, & theriaca*, all which have a faculty to resolve and strengthen the spirits, and nature, and correct the stench and evill quality of the *argentum vivum*. There are also other fumigations made after another manner, but that also when as the *argentum vivum* is extinct, and as it were fixt after this manner; let some lead bee melted, and let there be powred or put thereto some *argentum vivum*, then let it all be poudred, adding thereto Antimony, Aloes, Mastich, coprose, orpiment, and Benjamin made into poudre, and framed into Trochiscs with some turpentine. Or else, *R. cinnabaris, ʒ i. styracis rub. & calamita, nucis moschat. an. ʒ iii. benzoini, ʒ ʒ. excipe terebinthin. fiant trochisci ponderis ʒ ii.* for the foresaid use. The *terebinthina* is added to incorporate the dry things, and the gums are added to yeild matter to the fume. But virulent ulcers of the *Lues venerea* shall not be fumigated before they be cleansed; also this following fumigation is good. *R. cinnabaris, ʒ i. benzoini, myrrha, styracis, oliban, opopanax, an. ʒ ʒ. mastiches, macis, thuris, an. ʒ ii. excipiantur terebinthina, & fiat suffumigium.*

The common manner of using them.

The matter of them.

Trochiscs for fumigations.

CHAP. XV.

The cure of the symptomes, or symptomaticke affects of the Lues venerea, and first of the Ulcers of the Yard.



Allous and malignant ulcers in this disease may grow all over the yard; but these are far more malignant which arise on the prepuce, than those that grow on the *Glans*, or nut of the yard. Now they are rebellious to the common medicines of ulcers which happen other waies, & they are also subject to turne into a gangrene, so that sundry, who have not in time

The ulcers of the prepuce more malignant than those of the *Glans*.

provided for themselves by the use of *argentum vivum*, are forced for their negligence to suffer the losse of their *Glans*, and oftentimes of their whole yard. Yet I am of opinion that I thinke we must begin the cure of all ulcers of the yard with the generall remedies of ulcers. For all ulcers arising in these parts by reason of copulation, are not virulent. But when as we shall finde that we doe no good by this meanes, and that the disease notwithstanding growes worse and worse, then must we come to make use of such things as receive *argentum vivum*, that by these we may resist the virulency which is ready to disperse it selfe over all the body, yet it is absolutely necessary that all these things be endued with such faculties as may retund the malignant acrimony of this venome, such an one is this following collyrium of Lanfranc. *R. vini albi, lb i. aq. ros. & plantag. an. quart. i. auripig. ʒ ii. viridis aeris, ʒ i. aloes, myrrha, an. ʒ ii. terantur subtilissime, & fiat collyrium.* Also these ulcers may bee profitably touched with mercury water, or *aqua fortis* which the Goldsmiths have used, or else mercury in poudre, or our *egyptiacum*: but the falling away of the Eschar shall bee procured with *basilicon*, or fresh butter. Yet I think it not fit to use these acrid things without very great caution, for fear of a gangrene, which easily happen to this part. But if such ulcers are so stubborne, that they will not yeild to these remedies, then must we come to the friction or unction of the groines *perineum*, and ulcers, with the ointments formerly prescribed for the generall friction. Also fumigations may bee made, as wee mentioned in the former chapter. For thus at length the malignity of the virulent humour will be overcome, and the callous hardnesse mollified; and last-

Lanfranc's Collyrium.

ly the ulcers themselves cleansed, and being cleansed, consolidated. Sometimes after the perfect cure of such ulcers, there will appeare manifest signes of the *Lues venerea* in many, which shewed not themselves before, for that the virulency flowed forth of the running ulcers, and now this vent being stopt, it flowes backe into the body, and shewes signes thereof in other parts, and these men have need of a generall unction.

*This which by our Author is here termed *stranguria virulenta*, & in French *Chaupe pisse*, is the same which by other Authors is usually termed *Gonorrhœa virulenta*, & by us vulgarly in English the running of the Reines.

CHAP. XVI.

*How a Gonorrhœa differeth from a *virulent strangury.*



VEN to this day very many have thought that the virulent strangury hath some affinity with the *Gonorrhœa* of the Ancients, but you shall understand by that which followes, that they are much different. For a *Gonorrhœa* is an involuntary effusion of seed running from the whole body to the genitals, by reason of the resolution and palsie of the retentive faculty of these parts, as it is delivered by *Galen, lib. de loc. affect.* This disease befalleth others by the collection of the bloud and seminall matter by the vessels of the whole body, which not turning into fat and good flesh, takes its course to the genitals; but on the contrary, a virulent strangury is a running, or rather dropping out of the urenary passage, of a yellowish, livide, bloody, filthy *savies*, like to *pus* or matter not well concocted, oftentimes fretting and exulcerating the passage with the acrimony, and causing a painefull erection of the yard, and distension of all the genitall parts. For in this erection there is caused as it were a convulsive contraction of these parts. And hence it is that the patients complaine, that they feeble as it were a string stretched stiffe in that part, which drawes the yard as it were downewards. The cause hereof is a grosse and flatulent spirit, filling and distending by its plenty the whole channell or hollow nerve; yea, verily, the whole porous substance of the yard. If to these symptomes this be added, that the urenary passage be exulcerated, a grievous paine afflicts the patient whilest he makes water, for that the ulcers are irritated by the sharpe urine passing that way. Such a virulent strangury or running of the reines oftentimes continueth for two or three yeares space: but the *Gonorrhœa*, or running of the seed cannot endure so long, but that it will bring the body to an extreme and deadly leanenesse, for that the matter of the seed is of the more benigne and laudible portion of the bloud, as you may perceive by those who have too immoderately used copulation but the space of one night. For such have their faces more leane and lanke, and the rest of their bodies enervated, languisheth and becommeth dull. By this we have delivered, it may be perceived that the running of a virulent strangury, is not the running of a seminall humour, fit for generation of issue, but rather of a viscous and acride filth, which hath acquired a venenate malignity by the corruption of the whole substance.

What a virulent strangury is.

The cause of the convulsive distension of the yard.

Id. Auth. definit. med. apud Galen.

What kind of matter floweth forth in a virulent strangury.

CHAP. XVII.

Of the causes and differences of the scalding, or sharpenesse of the urine.



HE heat or scalding of the water, which is one kinde of the virulent strangury, ariseth from some one of these three causes, to wit, repletion, inanition and contagion. That which proceeds from repletion, proceeds either from too great abundance of bloud, or by a painefull and tedious journey in the hot sunne, or by feeding upon hot, acride, diureticke and flatulent meats, causing tension and heat in the urenary parts, whence proceeds the inflammation of them and the genitall parts, whence it happens that not onely a seminall, but also much other moisture may flow unto these parts, but principally to the *prostatæ*, which are glandules situate at the roots, or beginning of the necke of the bladder,

The cause of a particular repletion of the privie parts.

in which place the spermaticke vessels end; also abstinence from venery causeth this plenitude in some who have usually had to doe with women, especially the expulsive faculty of the seminall and urenary parts being weake, so that they are not of themselves able to free themselves from this burden. For then the suppressed matter is corrupted, and by its acrimony contracted, by an adventitious and putredinous heat, it causeth heate and paine in the passage forth. The *prostate* swelling with such inflamed matter, in proceſſe of time become ulcerated, the absceſſe being broken. The purulent *sanies* dropping and flowing hence alongſt the urinary passage causes ulcers by the acrimonie, which the urine falling upon, exasperates, whence sharpe paine, which also continueth for some short time after making of water, and together therewith by reason of the inflammation, the paines attraction, and the vaporous spirits distension, the yard stands and is contracted with paine, as we noted in the former chapter. But that which happens through inanition, is acquired by the immoderate and unfit use of venery, for hereby the oily and radical moisture of the forementioned glandules is exhausted, which wasted and spent, the urine cannot but be troublesome and sharpe by the way to the whole *urethra*. From which sense of sharpe paine, the scalding of the urine hath its denomination. That which comes by contagion, is caused by impure copulation with an unclean person, or with a woman, which some short while before hath received the tainted seed of a virulent person, or else hath the whites, or her privities troubled with hidden and secret ulcers, or carrieth a virulent spirit shut up or hidden there, which heated and resuscitated by copulation, presently infects the whole body with the like contagion, no otherwise than the sting of a Scorpion or *Phalangium*, by casting a little poison into the skinne, presently infects the whole body, the force of the poison spreading further than one would believe, so that the partie falls downe dead in a short while after. Thus therefore the seminall humour contained in the *prostate*, is corrupted by the tainture of the ill drawne thence by the yard, and the contagion infects the part it selfe; whence followes an absceſſe, which casting forth the virulency by the urenary passage, causeth a virulent strangury; and the malignant vapour carryed up with some portion of the humour unto the entrailes and principall parts, cause the *Lues venerea*.

The causes of the inanition of the genitall parts.

The reason of a contagious strangury.

С H A P. XVIII.

Prognosticks in a virulent strangury.



WE ought not to be negligent or carelesse in curing this affect, for of it proceed pernicious accidents, as we have formerly told you, and neglected, it becomes incurable, so that some have it run out of their urenary passage during their lives; oft-times to their former misery is added a suppression of the urine, the *prostate* and neck of the bladder being inflamed and unmeasurably swelled. Copulation, and the use of acride or flatulent meates encrease this inflammation, and also together therewith cause an *Ischuria*, or stoppage of the urine; they are worse at the change of the moone: certaine death followes upon such a stoppage; as I observed in a certaine man, who troubled for ten yeares space with a virulent strangury, at length dyed by the stoppage of his water. He used to be taken with a stopping of his urine, as often as he used any violent exercise, and then he helped himself by putting up a silver Catheter, which for that purpose he still carryed about him; it happened on a certaine time, that he could not thrust it up into his bladder, wherefore he sent for me, that I might helpe him to make water, for which purpose when I had used all my skill, it proved in vaine: when he was dead, and his body opened, his bladder was found full and very much distended with urine, but the *prostate* preternaturally swelled, ulcerated, and full of matter resembling that, which formerly used to run out of his yard, whereby you may gather, that this virulency flowes from the *prostate*, which runs forth of the yard in a virulent strangury, and not from the

A virulent strangurie continues with some during their lives.

A history.

From what part the matter of a virulent strangury flowes.

Reines

Reines, as many have imagined. Certainly, a virulent strangury, if it be of any long continuance, is to be judged a certaine particular *Lues venerea*, so that it cannot be cured, unlesse by frictions with *Hydrargyrum*. But the ulcers which possesse the neck of the bladder are easily discerned from these which are in the body or capacity thereof. For in the latter the filth comes away as the patient makes water, and is found mixed with the urine, with certaine strings or membranous bodies coming forth in the urine: to these may be added, the farre greater stinch of this filth which issueth out of the capacity of the bladder. Now must wee treat of the cure of both these diseases, that is, the *Gonorrhoea* and virulent strangury, but first of the former.

CHAP. XIX.

The chiefe heads of curing a Gonorrhoea.

Diet.



Et a Physitian be called, who may give direction for purging, bleeding and diet, if the affect proceed from a fulnesse and abundance of blood and seminall matter; all things shall bee shunned which breed more bloud in the body, which increase seed, and stirre to venery. Wherefore he must abstaine from wine, unlesse it be weak and astringent, and

For a strangury occasioned by repletion.

he must not onely eschew familiarity with women, but their very pictures, and all things which may call them into his remembrance, especially if he love them dearly; strong exercises do good, as the carrying of heaue burdens even until they swear, swimming in cold water, little sleepe, refrigerations of the loines and genitall parts by annoynting them with *unguentum rosatum refrigerans Galeni & nutritum*, putting thereupon a double cloth steeped in oxycrate, and often renewed. But if the resolution or weaknesse of the retentive faculty of these parts bee the cause of this disease, contracted by too much use of venery before they arrive at an age fit to performe such exercise; in this case strengthening and astringent things must both bee taken inwardly, and applied outwardly. But now I hasten to treat of the virulent strangurie, which is more proper to my purpose.

For the decay of the retentive faculty.

CHAP. XX.

The generall cure both of the scalding of the water, and the virulent strangury.

Diet.



We must diversly order the cure of this disease, according to the variety of the causes and accidents thereof. First, care must be had of the diet, and all such things shunned as inflame the bloud, or cause windinesse; of which nature are all diuretick and flatulent things, as also strong and violent exercises. Purging and bleeding are convenient, especially, if fulnesse cause the affect. Womens companies must be shunned and thoughts of venereous matters; the patient ought not to lye upon a soft bed, but upon a quilt or matterice, and never, if he can helpe it, upon his back; boyled meats are better than roasted, especially boyled with sorrel, lettuce, purslain, cleansed barley, & the four cold seeds beaten, for sauce, let him use none, unlesse the juice of an orange, pomgranate, or verjuice; let him shun wine, and in stead thereof use a decoction of barley and liquerice, a *hydromel*, or *hydrosaccharum* with a little cinamon, or that which is termed *Potus divinus*. In the morning let him sup of a barley creame wherein hath beene boyled a *nodulus* of the foure cold seedes beaten together with the seedes of white poppy; for thus it refrigerateth, mitigateth and cleanseth; also the syrups of marshmallowes and maiden-haire are good. Also purging the belly with halfe an ounce of *Cassia*, sometimes alone, otherwhiles with a dram or halfe a dram of *Rubarbe* in powder put thereto, is good. And these following pills are also convenient. *Rx. massa pilul. sine quibus Di. rhei electi 3℔. capbura gr. iiii. cum terebintina formentur pilule;* let them bee taken after the first sleep. Venice turpentine alone, or adding thereto

Pills.

some

some Rubarbe in powder, with oyle of sweet almonds newly drawne without fire, or some syrupe of maiden-hair is a singular medicine in this case, for it hath an excellent lenitive and cleansing faculty, as also to helpe forwards the expulsive facultie, to cast forth the virulent matter contained in the *prostate*. You may by the bitterness perceive how it resists putrefaction and you may gather how it performes its office in the reines and urinary parts, by the smell it leaves in the urine after the use thereof. But if there bee any who cannot take it in forme of a bole, you may easily make it potable, by dissolving it in a mortar with the yolk of an egge and some white wine, as I learned of a certaine Apothecary, who kept it as a great secret. If the disease come by inanition or emptinesse, it shall be helped by fatty injections, oily and emollient potions, and inwardly taking and applying these things which have the like faculty, and shunning these things which caused the disease. How to cure that which happens by contagion or unpure copulation, it shall bee abundantly shewed in the ensuing chapter.

The force of Venice turpentine in this disease.

How to bee made potable.

CHAP. XXI.

The proper cure of a virulent strangury.



INST we must begin with the mitigation of paine, and staying the inflammation, which shall be performed by making injection into the *urethra* with this following decoction warme. *Rx. sem. psylli, lactuca, papav. albi, plantag. cydon. lini, hyosciami albi, an. ʒ ii. detrahantur mucres in aquis solani & rosar. ad quantitatem sufficientem, adde trochisc. alborum Rhasis camphoratorum in pollinem redactorum, ʒ i. misce simul, & fiat injectio frequens.* For this because it hath

An injection to stay inflammation.

a refrigerating faculty, will help the inflammation, mitigate pain, and by the mucilaginous faculty lenifie the roughnesse of the *urethra*, and defend it by covering it with the slimy substance, against the acrimony of the urine and virulent humours. In stead hereof you may use cowes milk newly milked, or warmed at the fire. Milk doth not only conduce hereto being thus injected, but also drunk, for it hath a refrigerating and cleansing faculty and by the subtilty of the parts it quickly arrives at the *urethra* passages. Furthermore it will be good to anoint with *cerat. refriger. Galeni addita camphora*, or with *ceratum santalinum, ung. comitissa*, or *nutritum*, upon the region of the kidneys, loines and *perineum*, as also to anoint the Cods and Yard. But before you use the foresaid ointments or the like, let them be melted over the fire, but have a care that you make them not too hot, lest they should lose their refrigerating quality, which is the thing we chiefly desire in them. Having used the foresaid ointment, it will be convenient to apply thereupon some linnen clothes moistened in oxycrate composed *ex aquis plantaginis, solani, semperivi, rosarum*, and the like. If the patient bee tormented with intollerable paine in making water, and also some small time after, as it commonly cometh to passe, I would wish him that he should make water putting his yard into a chamber-pot filled with milke or water warmed.

The faculties of milke against a virulent strangury.

How to make water without paine.

The paine by this meanes being asswaged, we must come to the cleansing of the ulcers by this or the like injection. *Rx. hydromelitis symp. ʒ iv. syr. de rosis siccis, & de absinth. an. ʒ ʒ. fiat injectio.* But if there be need of more powerfull detersion, you may safely adde, as I have frequently tryed, a little *egyptiacum*. I have also found this following decoction to bee very good for this purpose. *Rx. vini albi oderiferi, lb ʒ. aquar. plantag. & ros. an. ʒ ii. auripigmenti, ʒ ʒ. viridis aris, ʒ i. aloës opt. ʒ ʒ. pulveriscentur pulverisanda, & bulliant simul.* Keep the decoction for to make injection withall. You may encrease or diminish the quantity and force of the ingredients entring into this composition, as the patient and disease shall seeme to require. The ulcers being thus cleansed, we must hasten to dry them, so that we may at length cicatrize them. This may be done by drying up the superfluous moisture, and strengthening the parts that are moistened and relaxed by the continuall defluxion, for which purpose

Detergent injections.

How the cleansed ulcers may be dried.

purpose

pose this following decoction is very profitable. *Rx. aq. fabrorum, lb i. psidiarum, bilaustr. nucum cupres. conuassatorum, an. 3 i & semin. sumach. & berber. an. 3 ii. syrup. rosar. & de absinth. an. 3 i. fiat decoctio.* You may keepe it for an injection to be often injected into the *urethra* with a syringe, so long as that there shall no matter or filth flow out thereat, for then there is certaine hope of the cure.

CHAP. XXII.

Of Caruncles, or fleshy excrescences which sometimes happen to grow in the Urethra, by the heat or scalding of the urine.

How caruncles come to grow upon the ulcers of the genitall parts.



Callous caruncles hard to cure.

Signes.

The supprest urine comes forth whereas it can get vent.

The fittest time for the cure. Why venery must be withheld.

The particular cure.

A fomentation.

Sharpe humour which flowes from the Glandules termed *Prostate*, and continually runs alongst the urenary passage, in some places by the way it frets, and exulcerates by the acrimony the *urethra* in men, but the necke of the wombe in women. In these, as also is usuall in other ulcers, there sometimes growes up a superfluous flesh, which oft times hinders the casting or comming forth of the seed & urine by their appropriate and common passage, whence many mischieues arise; whence it is that such ulcers as have caruncles growing upon them must be diligently cured. But first we must know whether they be new or old. For the latter are more difficultly to bee cured than the former, because the caruncles that grow upon them become callous and hard, being oft times cicatrized. Wee know that there are caruncles, if the *Catheter* cannot freely passe alongst the passage of the urine, but findes so many stops in the way, as it meets with Caruncles that stop the passage; if the patient can hardly make water, or if his water runne in a very small streame, or two streames, or crookedly, or onely by droppe and droppe, with such tormenting paine that he is ready to let goe his excrements, yea and oft times doth so, after the same manner as such as are troubled with the stone in the bladder. After making water, as also after copulation, some portion of the urine and seed staves at the rough places of the caruncles, so that the patient is forced to presse his yard, to presse forth such reliques. Sometimes the urine is wholly stopped, whence proceeds such distention of the bladder, that it causeth inflammation, and the urine flowing backe into the body, hastens the death of the patient. Yet sometimes the urine thus supprest, sweats forth preternaturally in sundry places, as at the fundament, *perinaeum*, cod, yard, groines. As soone as we, by any of the forementioned signes, shall suspect that there is a Caruncle about to grow, it is expedient forthwith to use means for the cure thereof, for a caruncle from a very litle beginning doth in a short time grow so bigge, that at the length it becomes incurable, verily you may easily ghesse at the difficulty of the cure by that we have formerly delivered of the essence hereof, besides, medicines can very hardly arrive therat. The fittest season for the undertaking thereof is the spring, and the next thereto is winter; yet if it be very troublesome, you must delay no time. Whilest the cure is in hand, the patient ought wholly to abstain from venery, for by the use thereof, the kidneies, spermaticke vessels, *prostate*, and the whole yard, swell up and waxe hot, and consequently draw to them from the neighbouring and upper parts, whence abundance of excrements in the affected parts, much hindering the cure. You must beware of acrid and corroding things in the use of detergent injections, for that thus the *urethra* being endued with most exquisite sense, may bee easily offended, whence might ensue many and ill accidents. Neither must wee be frightened if at some times wee see blood flow forth of secret or hidden caruncles. For this helps to shorten the cure, because the disease is hindered from growth, by taking away portion of the conjunct matter, the part also it selfe is eased from the oppressing burden, for the materiall cause of caruncles is superfluous blood. Wherefore unlesse such bleeding happen of it selfe, it is not amisse to procure it by thrusting in a *Catheter* somewhat hard, yet with good advise. If the Caruncles be inveterate, and callous, then must they be mollified by fomentations, ointments, cataplasmes, plasters, and fumigations; you may thus make fomentation. *Rx. rad. alth. & lilior. alb. an. 3 iv. rad. bryonia, & fenicul.*

*nicul. an. ʒiʒ. fol. malvar. violarum, parietar. & mercur. an. m ʒ. sem. lini, fanugr. an. ʒʒ. caricæ ping. an. xii. florum chamæm. & melil. an. p i. contendantur contra den- da, & incidenda incidantur, bulliant omnia in aqua communi : make a fomentation, and apply it with soft sponges. Of the masse of the strained out things, you may make a cataplasme after this manner. R. prædicta materialia, terantur, & trajiciantur, adde A cataplasme. axungie porci, unguenti basiliconis, an. ʒ ii. fiat cataplasma : let it be applyed presently after the fomentation. You may use this following liniment whilest the cata- plasme is providing. R. unguenti alth. & agrippæ an. ʒiʒ æsopi humide, & axung. A liniment. human. an. ʒ i. butyri recentis, olei lilior. & chamæm. an. ʒ vi. liquefiant simul, addendo aquæ vitæ ʒ i. fiat linimentum : let it bee applyed outwardly upon the part where- in the Caruncles are. For the same purpose plasters shall bee applyed, which may bee diversified, and fitted as you shall thinke good ; yet *Emplastrum de Vigo* truly made, exceedeth all the rest in a mollifying faculty, and in waisting such cal- lous hardnesse. The following fumigation is also good for the same purpose ; take some pieces of a mille-stone (for this wee use instead of the *pyrites* mentioned by the Ancients) or else some Bricks of a large size, after they are heated hot in the fire, let them be put into a pan, and set under a close stoole, then cause the patient to sit thereon, as if hee were going to stoole, then poure upon the hot stones e- quall parts of very sharpe vinegar, and very good *Aqua vitæ*, and casting clothes about him, that nothing may exhale in vaine : let him receive the ascending va- pour at his Fundament, *Perinaum*, *Scrotum*, and *Urethra*. Moreover, that this me- dicine may worke the better effect, you may put the Patient naked into the Barrell noted with this letter A. so that he may sit upon a seate or borde perforated on that part, whereas his Genitalls are, then place the pan holding the hot stones between his legges, then presently sprinkle the stones with the forementioned liquor, by the doore marked with the letter, B. Thus the Patient shall easily receive the fume that exhales therefrom, and none thereof bee lost, he covering and vailing himselfe on every side. Such a fumigation, in *Galens* opinion, hath a faculty to penetrate, cut, resolve, soften and digest scirrhus hardnesse.*

Vigo's empla- ster effectually to rotten a caruncle.

A suffumigium.

Ad Glanc. lib. 2. cap. 5. 1

A Barrell fitted to receive the Fume in.



CHAP. XXIII.

What other remedies shall be used to Caruncles occasioned by the Lues Venerea.

Particular defects of the Lues venerea not to be cured unless by the generall remedy of the virulency.

Caruncles if callous, must first be softened.

BUT if you suspect that these Caruncles come or are occasioned by a virulent humour, or the malignity of the *Lues venerea*, it is meet that the patient observe such a diet as usually is prescribed to such as are troubled with the *Lues venerea*; let him use a decoction of *Guajacum*, and let the *perineum* and the whole yard bee anointed with ointment made for the *Lues venerea*; otherwise the Surgion will lose his labour. In the interim whilst hee shall sweat in his bed, he shall bee wished to hold betweene his legges a stone bottle filled with hot water, or else a hot bricke wrapped in linnen cloathes, moistened in vinegar and *aqua vite*; for thus the heat and vapour will ascend to the genitalls, which, together with the helpe of the applied ointment, will dissolve the matter of the Caruncles, and being thus softened, they must be consumed with convenient medicines. Wherefore first if they become callous, or cicatrized (which you may suspect if they cast forth no excrementitious humidity) they shall be exasperated, excoriated and torne with a leaden *Catheter* having a rough button at the end like a round file. He shall so long use the *Catheter* put into the *Urethra*, thrusting it up and downe the same way so long and often as hee shall thinke fit for the breaking and tearing the Caruncles, hee shall permit them thus torne to bleed freely, so to ease the affected part. You may also for the same purpose put into the *Urethra* the *Catheter* marked with this letter B. whereinto putting a silver wiar sharp at the upper end, that by often thrusting it in and out, it may wear and make plain the resisting caruncles. Verily by this meanes I have helped many much perplexed with the fearefull danger of this disease. Some better like of the *Catheter* marked with the letter A. being thus used: it is thrust into the *Urethra* with the prominent cutting sides downewards, and then pressing the yard on the outside close with your hand to the *Catheter* in the place where the Caruncles are, it is drawn forth againe.

Catheters fit to weare asunder, or teare Caruncles.



A. sheweth the Catheter with the inserted silver wiar, but not hanging forth thereat.

B. sheweth the Catheter with the inserted silver wiar hanging forth at the end.

A powder to waite caruncles.

The thus torne Caruncle shall bee strawed over with the following powder, being very eff. Quall to waste and consume all Caruncles of the privities without much paine. R. herb. *sabin. in umbra exsiccat.* 3 ii. *ocra, antimon. tuth. preparat. an.* 3 lb. fiat pulv. subtilissimus, let it bee applied in the following manner. Put the powder into the

the pipe or *Catheter* having holes in the sides thereof, the which is the lowermost of the last described. Then put the *Catheter* into the urenary passage untill the slit or opennesse of the side come to the Caruncle, then into the hollownesse of the *Catheter* put a silver wiar, wrapped about the end with a little linnen ragge, which as it is thrust up, will also thrust up the poudre therewith, untill it shall come to the slit against the caruncle, then will it adhere to the caruncle, bloody by reason of the late attrition. Then shall you draw forth the *Catheter*, first twining it about, that so it may not scrape off the poudre againe. If intollerable paine hereupon happen, it shall bee asswaged, and the inflammation restrained by the following injection. *R. succorum portulacæ, plantag. solani, & semper vivi, an. ʒ ss. album ovorum, nu. vi. agitentur diu in mortario plumbeo*; let it be injected warme into the *urethra* with a syringe. In stead hereof you may also make use of another injection, which is formerly prescribed. Neither will it be unprofitable to apply repercussives to the genitalls, to hinder pain and inflammation. You may also use other medicines, having a faculty to consume the Caruncle, amongst which these following are excellent. *R. viridis æris, auripigmenti, vitriol. Rom. aluminis roch. an. ʒ ii. infundantur omnia in acet. acerrimo, atque inter duo marmora in pollinem redigantur*: then let it be exposed to the summer sunne, and dried, againe infused in sharp vinegar, and then as before grownd upon a marble, so that you shall finde nothing sharpe with your fingers; lastly let it be opposed to the sunne untill it may bee made into most subtile poudre, and all the acrimony be vanished, which will be commonly in eight dayes space. Then, *R. ol. rosat. ʒ iv. lythargyri ʒ ii. coquantur ad ignem, quousque coërint in emplastr. solidæ consistentiæ, ab igne tum semotis, adde pulv. prædict. ʒ ii.* let them bee mixed with a spatula, and put upon the fire untill it come to so hard a consistence, that it will sticke to a waxe candle, or lead wiar, so that it may not come off by handling with your hands. The Surgeons of *Montpelier*, use this medicine: This following is another, *R. turbiæ præpar. ʒ vi. antimoni, ʒ iii. trochisc. alborum, Rhas. camphorat. ʒ i. corticis granati, aluminis usti, an. ʒ i ss. spongiæ usta, ʒ ii.* let them all be made into poudre: then, *R. ung. diapompholigos, & alb. Rhasis, an. ʒ ii. misceantur cum prædictis pulveribus in mortario plumbeo, & diu agitentur*: let a very fine ragge bee spread over with this ointment, and wrapped about a waxe candle, and so thrust into the *urethra*, and then draw forth the candle againe by twining it a contrary way; so let the end of the ragge hang out of the yard, so to plucke it forth againe, when as you shall thinke it hath done what it can to the Caruncle, which is, when it hath covered it with the medicine with which it was spread. Some also make waxe candles with a slender, but stiffe weeke, whose end, which is to be put to weare and consume the Caruncle, is composed of the following medicine. *R. emplastri nigri, vel diachylonis ireati ʒ ii. pul. sabinae, ocre, vitriol. Rom. calcin. pul. mer. an. ʒ ss. omnia liquecant simul ad dictum usum.* Whilest the cure shall bee in hand by these following medicines, let the patient bee carefull that he so shake his yard after making water, that he may shake forth all the reliques of the urine which may chance to stoppe at the Caruncles; for if but one droppe should stay there, it would be sufficient to spoile the whole operation of the applied medicines. After that the Caruncle shall bee worne away and wholly consumed by the described medicines, which you may know by the urine flowing forth freely, and in a full streame, and by thrusting up a *Catheter* into the bladder without any stoppage; then it remains that the ulcers be dried & cicatrized, for which purpose the following injection is very powerfull and effectually, and without any acrimony. *R. aq. fabrorum ʒ ss. nuc. cupress. gallar. cort. granat. an. ʒ i ss. alum. roch. ʒ ss. bulliant omnia simul secund. art.* so make a decoction for an injection, which you shall use so long, untill no excrementitious humidity distill out of the yard. The following poudre dries more powerfully, and consequently hastens forwards cicatrization, and it is also without acrimony. *R. lapidem calamin. lotum, testas ovorum ustas, corallum rubrum, corticem granat. comminue omnia in pollinem*; let this poudre be used to the ulcers, with a waxe candle joyned to some unguentum desiccativum rubrum, or some such like thing. Also strings or rods of lead thrust into the *urethra* as thicke as the passage will suffer, even to the ulcers, being first besmeared with quicksilver, and kept in day and night as long as the patient can endure, are good to be used. For

How to apply it.

An injection to hinder inflammation.

An emplaster used by the Surgeons of Montpelier for Caruncles.

Another emplaster.

How to apply it.

A caution in making water.

Signes that the Caruncle is worne away.

An epulorick injection.

Quicksilver by drying causeth cicatrization.

they dry by their touch and cicatrize, they dilate the urenary passage without paine, and lastly hinder the sides of the ulcer from corrupting one another.

CHAP. XXIIII.

Of venereall Buboes, or swellings in the Groines.

The efficient
and materiall
causes of vene-
reous Bubo's.



Bubo's
caused by the
Lues Venerea.

Cupping.

A potentiall
Cautery.

He virulency of the *Lues venerea* is sometimes communicated to the Liver, which if it have a powerfull expulsive faculty, it expells it into the groines, as the proper emunctories thereof, whence proceed venereall Bubo's. The matter of these for the most part is a bundance of cold, rough, and viscous humours, as you may gather by the hardnesse and whitenesse of the tumour, the pravity of the paine, and contumacy of curing; which also is another reason, besides these that wee formerly mentioned, why the virulency of this disease may bee thought commonly to fasten it selfe in a phlegmaticke humour. Yet sometimes venereall Bubo's proceed from a hot, acride and cholericke humour, associated with great pain and heat, and which therupon often degenerate into virulent & corroding ulcers. Some venereous Bubo's are such conjoynd accidents of the *Lues venerea*, that they foretell it; such are these which for a small while shew a manifest tumour, and suddenly without any manifest occasion hide themselves againe, and returne backe to the noble parts. Others are distinct from the *Lues venerea* though they have a similitude of essence and matter therewith, and which therefore may be healed, the *Lues venerea* yet remaining uncured. Such are these which are usually seen, and which therefore compared with the former may be termed simple and not implicit. For the cure, you must not use discussing medicins, lest resolving the more subtle part, the grosser dregs become impact and concrete there; but much lesse must we use repercussives, for that the matter is virulent. Wherefore onely attractive and suppurating medicines are here to bee used, agreeable to the humour predominant and causing the tumour, as more hot things in ædematous and scirrhus tumours, than in those which resemble the nature of a *phlegmon* or *erysipelas*: the indication taken from the rarity and density of bodies insinuates the same variety. The applying of cupping glasses is very effectually to draw it forth. But when as it is drawne forth, you shall forthwith apply an emplasticke medicine, and then you shall come to suppuratives. When the tumour is ripe it shall be opened with a potentiall cautery, if it proceed from a cold cause; for by the inducing of heat the residue of the crude matter is more easily concocted, besides when as an ulcer of this kinde is opened, the matter will bee more easily evacuated, neither shall it bee fit to use any tent, but onely to apply pledgers. The residue of the cure shall bee performed by detergent medicines, and then if need require, the patient shall be let blood, and the humours evacuated by a purging medicine, but not before the perfect maturity thereof.

CHAP. XXV.

Of the Exostosis, bunches or knots growing upon the bones by reason of the Lues Venerea.

The matter of
knots, and viru-
lent T. p. 17.



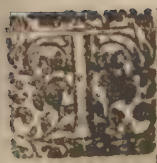
An emplaster
againe the
drawing out
of the bones.

And Tumours, *Exostoses* and knots have their matter from thicke and tough phlegme, which cannot be dissolved, unlesse by hot medicines, which have a mollifying & dissolving faculty. For which purpose, besides those medicines which usually are applyed to scirrhus tumours, you must also make use of *arg. viv.* commonly after this manner. *Rx. empl. filii Zach. & Ceronei, an. ʒiii. euphorb. ʒss. emplast. de vigo, ʒii. cerat. æsyp. descript. Philagr. ʒi. argent. vivi extinct. ʒvi. fiat emplastrum.* Spread it upon leather for your use. In the meane space let the patient observe a sparing dyet; for thus hee shall bee helped,

helped, if so be that the substance of the bones be yet unperished. For if it be putrefied & rotten, then the described medicines are of no use, but you must of necessity lay bare the bone, either by incision, or else by an actual or potentiall cautery; but I had rather doe it with an actual, for that it extracts the virulency impact in the bones, as also it hastens the abscesse, or falling away of the corrupted bone. It shall be of a convenient figure to cauterize the bone, as, round, square or long. I usually, before the application of such a Caustick, first divide the flesh that lyes over it with an incision knife, that so the paine may be the lesse, because the flesh cannot be burnt through but in a long time, by which the fire may come to the bone. But it will not bee amisse, before wee treat of this art, first to consider the nature of the rottennesse of the bones.

CHAP. XXVI.

Why the bones become rotten, and by what signes it may be perceived.



That solution of Continuity which is in the bones, is called by *Galen*, *Ca-*
tagma. This usually is the cause of rottennesse; for, bones that are gra- *Gal. meth. 6.*
ted, bruised, rent, perforated, broken, luxated, inflamed and dispoiled of
the flesh and skin, are easily corrupted; for dispoiled of their covering,
they are altered by the appulse of the aire, which they formerly never

felt, whence also their blood and proper nourishment is dried up and exhausted.

Besides also, the *sanies* running downe by reason of wounds and old ulcers, in pro-
cessse of time, fastens it selfe into their substance, and putrefies by little and little; this
putrefaction is encreased and caused by the too much use of oily and fatty medicines,
as moist and suppurate things; for hence the ulcer becometh more filthy and ma-
ligne, the flesh of the neighbouring parts groweth hot, is turned into *pus*, which pre-

The frequent
cause of the rot-
tennesse of
bones.

sently falling upon the bone lying under it, inflames it. Lastly, the bones are sub-
ject to the same diseases, as the flesh that lyeth under them is; besides also accor-
ding to *Galen*, the beginning of inflammation oft-times proceeds from the bones;

Hip. lib. de ulc. & fract.
Gal. lib. de tum. cont. nat.

but they beat not, because, according to the opinion of the ancients, pulsation is a
dolorificke motion of the Arteries, but the bones want sense. Which verily I can-

not deny, but also we must confesse that the membrane that encompasseth them, and
the arteries that enter into their body, are endued with most exquisite sense. Where-

fore the arteries compressed and waxing hot by reason of the inflamed bone, cause
a sense of paine in the *periostium*, so that the patients complaine of a dull and deepe

paine, as it were sunke into the substance of the bones. The rottennesse or corrupti-

Signes of the
rottennesse.

on is oft-times manifest to the eye, as when the bone is laid bare, for then it varieth
from the naturall colour, and becomes livide, yellowish or blacke. Otherwise you

may perceive it by touch, as by searching it with a probe, as when you meet with a-
ny inequality or roughnesse, or when by but gently touching it, your probe runs in-

to the substance of the bone, as into rotten wood, for a bone is naturally hard, but
being rotten, becomes soft. Yet hardnesse is not an infallible signe of a sound bone.

Hardnesse is no
infallible signe
of sound bones.

For I have seene rotten and bared bones, to have sometimes growne so hard, by the
appulse of the aire, that a Trepan could not, without a strong endeavour, enter them.

Also the rottennesse of the bone is known by the condriion of the filth which flowes
forth of the ulcer, for it is not onely more thin and liquid, but also more stinking.

Furthermore, such ulcers have a soft, loose and watery flesh; besides also, they are un-
toward and rebellious to sarcotick & epuloticke medicines; to which if they chance

to yeeld and be cicatrized, yet within a short while after the scarre will relent of its
own accord, for that nature, destitute of the firm and sound foundation of the bones,

cannot build up a laudible and constant flesh. Neither is it sufficient that the Surge-
on know certainly that the bone is rotten and corrupt, it is furthermore fit he know,

whether this corruption be superficially, or pierce deepe into the substance of the
bone, that he may know how much of the bone must be scailed. For scailing is the

The cure of a
rotten bone.

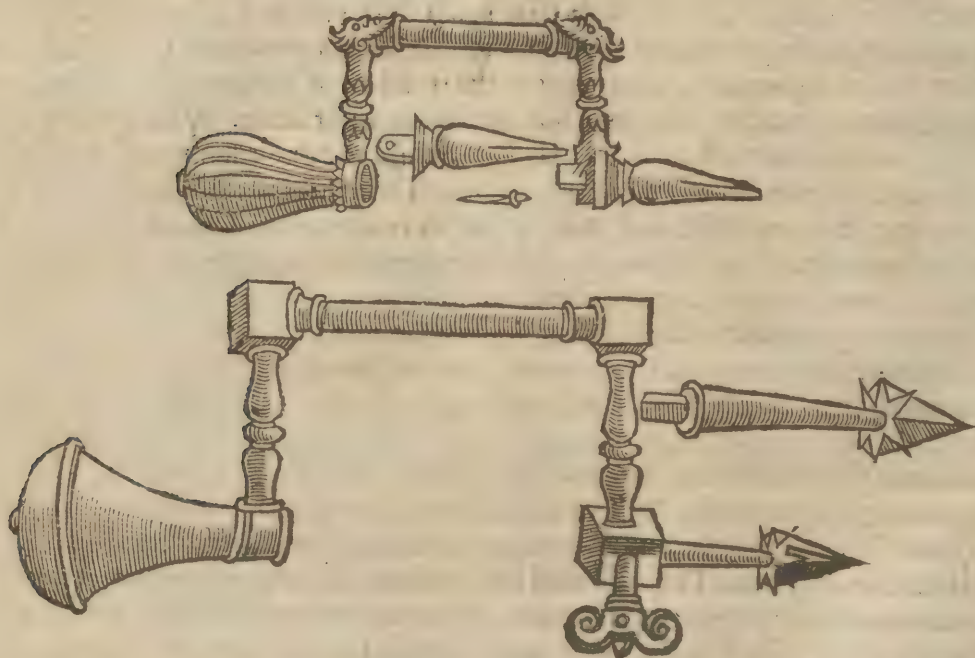
onely cure of that which is corrupted; now it is scailed by that which dries ex-

A catagmatick
powder.

A desquamato-
ry or scailing
plaster.
Duslib. 3 cap 78.

ceedingly, and drawes forth all the humidity, aswell the excrementitious, the author of the rotnenneſſe, as the alimentary. For thus it remaines without bloud and nourishment, and consequently life also; whence it must of necessity scaille or fall off, being destitute of the glue or moisture which joyned it to the sound parts in vicinity and communion of life, like as leaves which fall away from the trees, the humidity being exhausted, by which, as by glue, they adhered to the boughes. For this purpose Catagmatick powders are prepared to amend the corruption which is only superficially. *Rx. pul. aloes, creta combusta, pompholygos, an. ʒii. ireos flor. aristoloch. rot. myrrh. cerusse, an. ʒi. pul. osteor. combust. ʒʒ. terantur subtiliss. fiat pulvis*; let it be applied either alone by it selfe, or else with hony and a little *aqua vita*. Also the following emplaster being applied, stirs up nature to the exclusion of the broken bones, and cleanseth the ulcers from the more grosse and viscid *sanies*. *Rx. cer. nov. res. pini, gum. ammon. & elemi, an. ʒvi. tereb. ʒiii. pul. mastich. myrrh. an. ʒʒ. aristol. rot. ireos flor. aloes, opopan. euphorb. an. ʒi. olei rosati quantum sufficit, fiat emplastr. secundam artem*. Euphorbium, according to Dioscorides, takes off the scales of bones in one day. Hereto also conduceth *Emp. de betonica*. Or, *Rx. olei caryophyl. ʒʒ. camph. ʒii. misceantur simul in mortario, & utere*. But if that part of the bone which is corrupt cannot thus be taken away, then must you use the scailing Trepan and Scrapers described formerly in wounds of the head; especially if any more great or solid bone be foule. Furthermore the here described Trepan will be good to perforate the rotten bone in many places where it is corrupted, untill, as it were, a certaine bloody moisture issue forth at the holes; for thus it more freely enjoyes the aire, and also the force of the medicines admitted by these holes works more powerfully.

A Trepan with two triangular bits & a pin to hold them in the stocks: as also another Trepan having foure-square & sixe-square bits convenient for to be used in the rotnenneſſe of greater bones.



Signes that the
rotnenneſſe is
taken away.

But if the rotnenneſſe be more deepe, and the bone more hard, either by nature or accident, as by the occasion of the too long admiffion of the aire, then the rotten scales shall bee cut off by the instruments described in wounds of the head, driving them into the bone with leaden mallets, lest the part should bee too much offended or shaken with the blow. The scales and fragments shall bee taken forth with mallets, the signes that all the rotnenneſſe is taken away, are the solidnesse of the bone thereunder, and the bloody moisture sweating out thereat.

CHAP. XXVII.

Of actual & potentiall Cauteries.

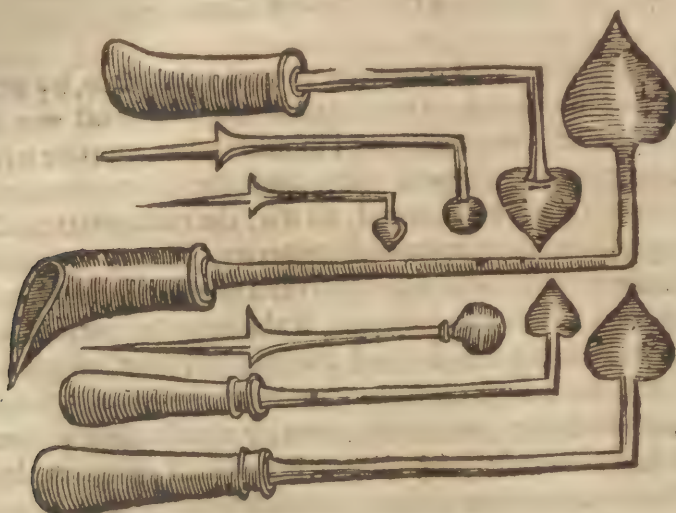
BUT if the described remedies cannot take place, by reason of the malignity or magnitude of the rottenesse, then must wee come to actual and potentiall cauteries. But I should rather approve of actual, because by strengthening the part, they consume the excrementitious humours wherewith it is overcharged, to wit, the matter of the Caries; which is not so effectually performed by potentiall cauteries. Yet are we oft-times forced to use these, to please the patients which are terrified at and affraid of hot irons. Potentiall Cauteries are *aqua fortis*, *aqua vitrioli*, scalding oyle, melted sulphur and boiling, and the like: in pouring on of which I would have the Surgeon to be prudent and industrious, lest he should rashly violate the neighbouring sound parts by the burning touch of these things; which his temerity would cause vehement paines, inflammations and other horride symptoms. For actual cauteries, their variety in figure is so great, that it cannot be defined, much lesse set downe in writing; for they must be varied according to the largeness of the rottenesse, and the figure and conformation of the fouled bones. Such as are more usuall I have thought good here to delineate unto you, content onely to admonish you thus much, that some of these work by pricking, some by cutting, some flatwise, and other some with their points made to the forme of an Olive leafe.

Actual Cauteries to be preferred before potentiall.

Potentiall Cauteries.

Sundry forms of actual Cauteries fit in all necessary cases of all parts.



Other Cauteries.*Other Cauteries for the same purpose.*

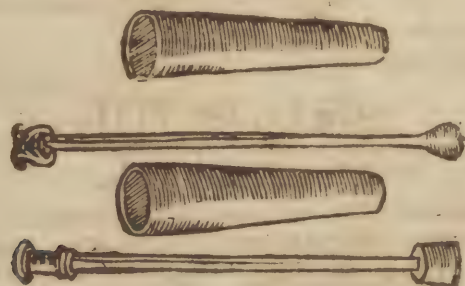
The following figure of a Cautery is fit for virulent knots that arise in the skull, when you desire to take away the flesh that covers the bone; for this purpose it is made hollow and sharpe in a triangular and quadrangular forme, divided as it were into three branches, that you may so make use of which you please.

The figure of a hollow and cutting Cauterie.



The Cauteries whose formes are hereafter exprest take place in rotten bones that lye deep in, wherein you cannot make use of the formerly described without touching of the neighbouring sound parts. To avoyd which danger you shall put your Cautery even to the bone through an iron pipe, which may keep the neighbouring and fleshy parts from burning.

Actual Cauteries with their pipes.



Great discommodities ensue upon too rash, that is, too frequently applyed Cauteries, or too long adhering to the bone; for by this immoderate and fiery heat not onely the excrementitious humidity of the rotten bone is consumed, but also the radicall and substantiall moisture of the part is exhausted, wherein alone nature, endeavouring to cast off the corrupt scales, and sever the sound from the rotten bone, and to substitute flesh, stands and consists. Whereof, the measure of applying of Cauteries ought to be taken from the greatnesse of the rottenesse, and the excrementitious, or after a manner foaming humidity sweating through the pores of the bone. But before you presse your cautery into the rotten bone which lies very deep in, as that which happens in the thigh bone, and upon other very fleshy parts, you must diligently defend the neighbouring, sound and fleshy parts, as it were with a covering, for that the humour diffused by the touch of the fire, burns the other places whereunto it diffuseth it selfe like scalding oyle. After the cauterization you must helpe forwards the falling away of the scales, by sometimes dropping in our oyle of whelpes, being made scalding hot. This oyle, though very fit for this purpose, yet doe I not iudge it fit to use it too often, it may suffice to have dropped it in some twice or thrice. For at length it may violate the sound bone, that lyes under the rotten, by the oily, subtle and moist substance. Furthermore, a bone is the most dry part of the body, therefore unctuous and moist medicines are contrary to its temper and consistence. But it conduceth often and gently to move the scales already

Manner of applying of Cauteries.

Oyle of whelpes helps towards the casting off of scales.

ready

A caution in
moving the
scallies of burnt
bones.

Cephalick pow-
ders of what
composed.

ready beginning to separate themselves, and it hastens the slackenesse of nature in casting them off. Yet may you not use force, unlesse peradventure when as they hang as it were by a slender thread; otherwise if the unwary Surgeon forcibly pluck away the scallies before that nature hath put a cover upon the sound bone, hee shall give way to a new alteration and foulness by the appulse of the aire. Furthermore, after the corrupt scaille is falling off by the force of nature expelling it, you must have diligent heed that you put not eating or corroding medicines upon the bone that is under it; for thus thou shalt consume or waste the flesh which nature hath generated thereupon, which composed of newly concreted blood, is like in softnesse to newly cruddled milke, which otherwise in time would grow into a more solid and hard consistence. This undergrowing flesh by little and little thrusts the rotten bone above it, out of its place, and is the cause of the scailing thereof; it is at the first gathered together like the graines of a pomgranate, with a red, smooth and equall *sanies*, and not stinking, and at length it casts forth a white matter. Therefore then wee must rather straw thereon Cephalick powder composed of such things as have a faculty to drie without biting, such as are Orris roots, washed aloes, masticke, myrrhe, barley flowre, and the like. Lastly, it must bee cicatrized; it is better that scallies of bones fall away of themselves by the onely force of nature, than to be plucked away by the force of medicines, or instruments; because, such as are too violently and forcibly plucked away, leave corners like to fistulous ulcers. Neither ought the corrupted membranes when they are turned into pus to bee plucked away too violently, or to bee touched by too acride medicines; for paine hereupon arising, hath divers times caused inflammation, convulsion and other pernicious symptoms. Therefore it is better to commit this businesse to nature, which in successe of time, by making use of the expulsive faculty, will easily free its selfe from this rotten substance; for that which is quick as farre as it is able, will still put away that which is dead from it.

С H A P. XXVIII.

Of a vulnerary potion.



Ut if the contumacious rottenesse of the bone and also a rebellious ulcer shall not yeeld to the described remedies, it will bee convenient to prescribe a vulnerary potion to the patient. For nature helped by such a potion, hath to my knowledge sundry times done wondrous things, in the amendment of corrupt bones, and consolidation of ulcers. For these potions though they doe not purge the noxious humours away by stoole, yet are they wondrous effectually to cleanse ulcers, and free them from the excesse of excrementitious humours, to cleanse the blood, and purge it from all impurity, to agglutinate broken bones, and knit the sinewes. I have here thought good to speake of them, and chiefly, for that they were much commended by the Ancients, but neglected by the moderne Physicians and Surgeons. But if the cure of wounds and old ulcers be performed by detersion, and the reposition of the lost substance, what medicine can sooner or rather do it than that, which by its admirable and almost divine force so purgeth the blood, that thereof, as from a fit and laudible matter, the flesh or any other lost substance may be fitly restored, and the part recover its former union? But if fistulous Ulcers, Cancers, Gouts & the like diseases be offended by the use of salt, spiced, acride meates and others which are of subtile parts, as mustard, onions and garlike, or any other excesse in meat, or drinke, why may they not become milde and gentle by medicated and contrary meats and drinks, or at least bee reduced to a more equall temper? Therefore that Surgeons may know of what things such compositions may arise, I have here thought good to reckon them up, that you may learn what they are.

The use of vul-
nerary potions.

Scabious.

| | |
|--------------------------------------|---------------------------------|
| Scabions. | <i>The capillaries.</i> |
| Sanicle. | <i>Herbe Robert.</i> |
| Bugle. | <i>Doves foot.</i> |
| Mouſ-eare. | <i>Dozges tongue.</i> |
| Burnet. | <i>Avenes.</i> |
| Madder. | <i>Prunella.</i> |
| Tanſie. | <i>Oſmund.</i> |
| Tops of hempe. | <i>Clarge.</i> |
| Tops of Brambles. | <i>Gentian.</i> |
| Sowes bread. | <i>Herniaria.</i> |
| Comfory the greater and leſſer. | <i>Red Colewurt or Cabbage.</i> |
| Vervine. | <i>Scordium.</i> |
| Biſtorte. | <i>Cattes minſe.</i> |
| Mugwurt. | <i>Cinque foile.</i> |
| Periwinkle. | <i>River Crabs.</i> |
| Centaur. | <i>Mace.</i> |
| Adders tongue. | <i>Bolearmenick.</i> |
| Betonie. | <i>Petum or Tobacco.</i> |
| <i>Cardus benedictus.</i> | <i>Mead-sweet.</i> |
| <i>The cordiall flowers.</i> | <i>Colts-foot.</i> |
| <i>Aristolachia, or Birth-warts.</i> | <i>Dandelion.</i> |
| <i>Speedwell.</i> | <i>Plantaine.</i> |
| <i>Agrimonic.</i> | <i>St. Johns wurt.</i> |

Of all theſe the Surgeon ſhall make choice according to the mind and judgement of the Phyſician, ſuch as he ſhall thinke fit and proper to every ulcer or wound, or to each wounded and ulcerated part, according to the condition of the time, the temper of the patient and kinde or nature of the diſeaſe. You may make drinckes not onely of the decoctions of theſe, but alſo of their juices in white wine, or *anemel*, which are good not onely to purifie the maſſe of the bloud, to cleanſe ſanious, virulent, filthy and diſſenterious ulcers, but alſo to drive away putrefaction, ſcail bones, diſſolve clotted bloud in bruifes, to draw, plucke out and exterminate all ſtrange bodies, as I have often obſerved to my great admiration. They are compoſed uſually after this manner: *R. ſavie. bugul. ſcabioſ. beton. ſcord. nepet. an. m. ſ. uvar. mind. ſem. hyper. & card. ben. an. ʒi. trium flor. cord. an. p. ii. coquantur complete in aq. communi; poſtea in ſine adde vini alb. mel. roſ. & cinnam. quod ſufficit, fiat decoctio, coletur per manicam.* Let him drinck ʒiii. in the morning 3. houres before dinner. You may alſo with good ſucceſſe make injections with the ſame liquor into fiſtulous and ſinuouſ ulcers, as alſo to waſh the ſordid ulcers therewith. You may alſo boile the ſame ſimples, as herbs, flowers and ſeeds in the patients broth, that ſo they may acquire a medicinable and nourishing faculty. For the time of the affect, wherein you may with good ſucceſſe make uſe of theſe, we have read in *Guido*, that he uſed not to preſcribe theſe potions to his patients when as they were newly wounded, for that they commonly are compoſed of things hot and opening, which heat and attenuate the bloud, whence there would be danger of a deſluxion, upon the affected part. Wherefore when the matter is come to ſuppuration, when as there nothing remains, but to cleanſe the ulcer and fil it with fleſh, no inflammation as now remaining in the part, I judge theſe potions may then be uſed with good ſucceſſe.

The forme of a
vulnerary
potion.

In what time of
the diſeaſe they
are chiefly to
be uſed.

CHAP. XXIX.

Of Tettors, Ring-wormes or Chops occasioned by the Lues venerea.

Signes of the
new bred dis-
ease.

The cure of
newly come
Tettors.

A water drying
virulent tecters.

The cure of
old tecters.

A Fumigation.

A Liniment.

UPon the cure of the *Lues venerea*, usually Tettors and Chops happen there-
upon, which make furrowes in the palmes of the hands & soles of the feet.
They acquire their matter from salt phlegme, or adust choler, or the re-
liquies of the venereous virulency sent thither. The cure especially when as
the disease is grown old, is difficult, by reason that the humour hath long accustomed
to flow that way, & for that it hath corrupted the habite of the part by the continuall
defluxion; but the cure is more easie if the disease bee newly bred. Now you may
know it is newly bred by the rednesse, accompanied by a great itching, and not only
a driness of the skin, but also a thicknes & denseness thereof. That which is old, be-
sides these fore-recited signs, have scaily & branlike hardnesse conjoined therewith,
which by scratching & rubbing cast off scailles. For general medicines, the distemper
of the liver & habit of the body must be corrected, which by the occasion of the for-
mer disease & remedies apt to inflame the blood, cannot but much swerve from their
native temper. This may be done by diet conveniently appointed, by purging and al-
tering medicines, bleeding, bathing, applying of cupping-glasses and horns. For to-
pick or particular medicines, wash such as are newly or lately bred with the following
water which dries and is of subtile parts. *Rx. aq. ros. & pariet. an. ʒi. aq. alum. ʒii. calc. ʒii. alum. ʒiii. pul. subl. ʒiiii. fiat lent. et minim. ebul. in bala. mar.* This water shall bee made
more or lesse forcible according to the condition of the disease. Or, *Rx. ol. tart. ʒii. sap. com. ʒiv. m. sc. fiat unguent. ad usum.* If the Physician shall think good, let the patient
use a decoction of *Guaiacum*, but that very weak. But old Tettors and Chops must be
softned with emollient, attenuating and inciding decoctions, as also with liniments,
ointments and plasters having the same effect. Then let the residue of the cure be per-
formed by fumigations, such as this which followes. *Rx. pul. cinab. ʒii. lad. ass. odor. sti- rac. cal. an. ʒʒ. olib. mastic. an. ʒiii. olei tart & theriac. q. s. fiant trochisci*; use at each time
some ʒʒ. of them, and let only the affected parts receive the smoak. Some commend
the rubbing of the hands with the following medicine. Take the ashes of wine lees,
make thereof a lie, & strain it through an hypocras bag, then put thereto some rennet,
let them be well mixed together in a mortar, and herewith let the hands be rubbed or
washed: Or, *Rx. unguent. enul. ʒiii. fugit. ʒii.* Or else, *Rx. res. pini, ʒi. cerus. ʒʒ. argent. viv. ʒiii. succi citri & sapath. acut. an. ʒʒ.* Let them be incorporated & make a liniment to be
used to the part. If to this you adde sublimate so washed & prepared, as women use
for their faces, you shall make it more effectually. Others take burnt alum made into
powder, and incorporated with the yolke of an egge, the juice of Citrons, and a little
aloes dissolved in *oxymel scilliticum*.

CHAP. XXX.

Of curing the Lues Venerea in infants and little children.

The cure.



INfants oft-times conceive the seeds of this disease in the wombs of their
mothers, and are borne infected therewithall, pustles presently arising
over all the bodies, infecting with the like disease as many nurses as give
them suck; they scarce ever recover thereof, for that they contracted the
disease from their first conformation. But such as are somewhat bigger,
if they chance to catch the disease after they are born by sucking some infected nurse,
or by any other occasion or kind of contagion, often times receive cure. For first, you
shal cause the nurse to use the *aqua theriacalis* hereunder described, for the space of 20
or more daies, that so she may the better arm herself against the contagion of this dis-
ease, & yeeld milk which may have the faculty both of meat and medicine; she shall
be carefull as often as she gives the child suck, to wash and dry her teat or pap, lest the
virulency

virulency that the child breathes out at his mouth, be impact in the little holes of the teat through which the milk flowes out. Now the pustules of little children shall bee anointed with some ointment that receives *argentum vivum* in some small quantity, as *unguentum enulatum cum mercurio*, or the like. Then shall it be swathed or bound up in swathes and clothes aired with the formerly described fumigations. For the rest, it shall be kept as warm as you can in some warm place. These & the like must be done not in one continued course, but at severall seasons, otherwise it is to be feared, that it would cause ulcers to arise in the mouth, or else salivation. If any ulcers arise in the mouth and spread therein, they shall be touched with the formerly described waters, but made somewhat weaker, having regard to the tender age of the patient; if the infant shall get this disease of its nurse, let the nurse be presently changed, for it being otherwise nourished with tainted and virulent blood, can never be healed. Many have by these means recovered; but such as have perisht, have not perisht by the default of medicines, but by the malignity and vehemency of the disease.

*A description of the aqua Theriacalis, or treacle water
formerly mentioned.*

*℞. rasur. interior. ligni sancti gummosi, ℥ ii. polypod. querni, ℥ iv. vini albi dulcedinis expertis ℥ ii. aqua fontan. puriss. ℥ viii. aquar. cichor. & fumar. an. ℥ iv. sem. juss. A treacle water
heder. & baccar. lauri an. ℥ ii. caryophil. & macis, an. ℥ ℞. cort. citri saccharo condit.
conf. ros. anthos, cichor. buglos. borag. an. ℥ ℞. conf. anule camp. theriac. vet. & mithrid.
an. ℥ ii. distill them all in balneo Maria after the following manner. Let the Guajacum be infused in equall parts of wine and the forementioned waters for the space
of twelve houres, and the residue of the things in that which remaines of the same
wine and waters for sixe houres space, beating such things as may require it,
then let them bee mixed altogether, that so the liquor may be endued with all their
faculties. Which that it may be the more effectually performed, let them be boyled,
put up in glasse bottles closely stopped for some three or four hours space, in a large
kettle filled with boiling water, then let them be put into a glasse alembicke, and to
distilled. Give ℥ iv. of this distilled liquor at once, being aromatized with ℥ i. of cin-
namon, and ℥ i. of Diamargariton, and ℥ ℞. of sugar, to give it a pleasing taste. Such
a drinke doth not onely retunde the virulency of the Lues venerea, but strengthens
the noble parts. Rondeletius makes an aqua theriacalis after this manner. *℞. theriac.
vet. ℥ i. acetos. m iii. rad. gram. ℥ iii. puleg. card. ben. an. m ii. flor. chamam. p ii. tem- Rondeletius his
perentur omnia in vino albo, & distillentur in vase vitrio: reserve the water for use; Treacle water.
whereof let the patient take ℥ ii. with ℥ iii. of sorrell and buglosse water: he wisheth
this to be done when he shall enter into bed or a stove; forso this distilled liquor will
cause sweat more easily, and mitigate paine, whether given by it selfe, or with a de-
coction of Grommell, or of chyna, or burre-docke roots; yet if the patient bee of a
phlegmaticke constitution, hee shall use a decoction of Guajacum in stead of a de-
coction of chyna, for it penetrates more speedily, by reason of its subtilty, of
parts, and also expells the dolorificke matter.**

The End of the Nineteenth Booke.

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OF THE
SMALL POCKS
 AND MEAZLES:
 AS ALSO
 OF VVORMES AND THE
 LEPROSIE.

THE TWENTIETH BOOKE.

CHAP. I.

Of the causes of the Small Pockes and Meazles.



FOR that the small Pocks and Meazles are diseases, which usually are forerunners and foretellers of the plague, not only by the corruption of humours, but oft times by default of the aire; moreover, for that wormes are oft times generated in the plague, I have thought good to write of these things, to the end that by this treatise the young Surgeon may bee more amply and perfectly instructed in that pestilent disease. Also I have thought good to

treat of the Leprosie as being the off-spring of the highest corruption of humours in the body. Now the small pocks are pustles, and the meazels spots which arise in the top of the skinne by reason of the impurity of the corrupt blood sent thither by the force of nature. Most of the Antients have delivered that this impurity is the reliques of the menstruous blood remaining in the body of the infant, being of that matter from whence it drew nourishment in the wombe, which lying still or quiet for some space of time, but stirred up at the first opportunity of a hotter summer, or a southerly or rainy season, or a hidden malignity in the aire, and boyling up, or working with the whole masse of the blood, spread or shew themselves upon the whole surface of the body. An argument hereof is, there are few or none who have not beene troubled with this disease, at least once in their lives, which when it begins to shew it selfe, not content to set upon some one, it commonly seazeth upon more: now commonly there is as much difference betweene the small pockes and meazles, as there is between a Carbuncle and a pestilent *Bubo*. For the small pockes arise of a more grosse and viscous matter, to wit, of a phlegmaticke humour. But the meazles of a more subtile and hot, that is, a cholericke matter, therefore this yeilds no markes thereof, but certaine small spots without any tumour, and these either red, purple, or blacke. But the small pockes are extuberating pustles, white in the midst, but red in the circumference, an argument of blood mixed with chol-

What the small
 pockes and
 Meazles are.
 Their matter.

Why the Meazles doe not itch.

Prognostickes.

A historie.

What grievous and pernicious symptoms may happen by the small pockes.

ler, yet they are scarce knowne at the beginning, that is, on the first or second day they appeare; but on the third and fourth day they bunch out and rise up into a tumour, becomming white before they turne into a scab; but the meazles remaine still the same. Furthermore the small pockes pricke like needles by reason of a certaine acrimony, and cause an itching; the meazles doe neither, either because the matter is not so acride and biring, or else for that it is more subtle, it easily exhales, neither is it kept shut up under the skinne. The patients often sneeze when as these matters seek passage out, by reason of the putride vapours ascending from the lower parts upwards to the braine. They are held with a continuall feaver, with paines in their backes, itching of their nose, head-ach, and a vertiginous heavinesse, and with a kinde of fawning or fainting, a nauseous disposition, and vomiting, a hoarsenesse, difficult and frequent breathing, an inclination to sleepe, a heavinesse of all the members, their eyes are fiery and swollen, their urine redde and troubled. For prognostickes, wee may truly say thus much, That the matter whence this affect takes its originall, partakes of so malign, pestilent and contagious a quality, that not content to mangle and spoile the fleshy parts, it also eates and corrupts the bones, like the *Lues venerea*, as I observed not onely in *Anno Dom. 1568.* but also in divers other yeares, whereof I thinke it not amisse to set downe this notable example.

The daughter of *Claude Piquè* bookseller, dwelling in *S. James* his street at *Paris*, being some foure or five yeeres old, having beene sicke of the small pockes for the space of a month, and nature could not overcome the malignity of the disease, there rose abscesses upon the *sternon* and the joints of the shoulders, whose eating and virulent matter, corroded the bones of the *sternon*, and divided them insunder; also it consumed a great part of the toppe of the shoulder-bone, and the head of the blade-bone: of this thing I had witnesses with me, *Marcus Myron* physitian of *Paris*, and at this present the Kings chiefe physitian, *John Doreau* Surgeon to the *Comte de Bryane*, the body being dissected in their presence. Also you may observe in many killed by the malignity of this disease, and dissected, that it causeth such impression of corruption in the principall parts, as brings the dropsie, ptisick, a hoarsenesse, *Asthma*, bloody fluxe ulcerating the guts; and at length bringing death, as the pustles have raged or rained over these or these entrailes, as you see them to do over the surface of the body; for they do not only molest the externall parts, by leaving the impressions and scarres of the pustles and ulcers, rooting themselves deepe in the flesh, but also oft times they take away the faculty of motion, eating asunder, and weakening the joints of the elbow, wrest, knee and ancle. Moreover sundry have been deprived of their sight by them, as the Lord of *Guymenay*, others have lost their hearing, and other some their smelling, a fleshy excrescence growing in the passages of the nose and eares. But if any reliques of the disease remaine, and that the whole matter thereof bee not expelled by the strength of nature, then symptoms afterwards arise, which favour of the malignity of the humour, yea and equall the harme of the symptoms of the *Lues venerea*.

CHAP. II.

Of the cure of the Small Pockes and Meazles.

The cure.



He cure of this disease useth to bee divers, according to the condition of the humour free from, or partaker of the venenate quality. For if it partake of malignity, and the childe bee a sucking childe, such things shall be given to the Nurse as may infringe and overcome the strength of the malignity, as wee shall shew more at large, when wee come to treat of the cure of children which are sick of the plague; howsoever it be, the child must be kept in a warm roome free from winde, and must bee wrapped and covered with scarlet cloathes, untill the pockes come forth. There shall bee provided for the Nurse medicated brothes with purslaine, lettuce, sorrell, succory, borage, and French barley bound

up in a cloth. She shall shun all salt, spiced and baked meates, and in stead of wine drinke a decoction of liquerice, raisons and sorrell roots. She shall also take purging medicines, as if she were sicke of the same disease, that so her milke may become medicineable. Lastly, shee shall observe the same diet as is usually prescribed to such as have the plague. You shall give the child no pappe, or if you give it any, let it bee very little. But if the child be weaned, let him abstaine from flesh, untill the feaver have left him, and the pocks bee fully come forth: in stead of flesh let him feed on barley and almond creames, chicken brothes, wherein the fore-named herbes have beene boyled, ponadoes, gellies, culasses, prunes and raisons. Let his drinke bee a prisane made of French barley, grasse and sorrell roots, or with a nodula containing the foure cold seeds, the pulpe of prunes and raisons, with the shavings of Ivory and hartshorne; Betweene meales the same decoction may be mixed with some syrupe of violers, but not of roses or any other astringent syrupe, lest wee hinder the course and inclination of the humour outwards. Let his sleepe be moderate, for too sound sleep drawes back the mater to the center, and encrease the feaver; you must neither purge, nor draw bloud the disease increasing or being at the height, unlesse peradventure there bee a great plenitude, or else the disease complicate with other, as with a pleuritic, inflammation of the eyes, or a squinancie which require it, lest the motion of nature should be disturbed; but you shall think it sufficient to loose the belly with a gentle glyster: but when the height of the disease is over, and in the declension thereof, you may with *Cassia* or some stronger medicine evacuate part of the humours and the reliques of the disease. But in the state and increase it is better to use sudorificks, which by attenuating the humours and relaxing the pores of the skin may drive the cause of the disease from the center to the circumference, which otherwise residing in the body might bee a cause of death; as I and *Richard Hubert* observed in two maides, whereof one was foure, and the other seventene years old; for we dissecting them both being dead, found their entrailes covered with scabby or crusted pustles, like those that break forth upon the skin. We must not think that a bleeding at nose at the beginning of the disease, or in the first foure or five dayes should carry away the matter and originall of the disease, for neverthelesse the pocks will come forth; but for that this is a true and naturall *crisis* of this disease, as that which is carryed to the surface and circumference of the body, such bleeding must not be stopped, unlesse you feare it will cause fowning. The matter shall bee drawne out with a decoction of figs, husked lentils, citron seeds, the seeds of fennell, parslly, smallage, roots of grasse, raisons and dates. For such a decoction, certainly if it have power to cause sweat, hath also a faculty to send forth unto the skin the morbidicke humour; the seeds of fennell and the like opening things relaxe and open the pores of the skin; figges lenifie the acrimonie of the matter, and gently cleanse, the lentils keepe the jawes and throate, and all the inward parts from pustles, and hinder a fluxe by reason of their moderate astringion, but having their huskes on, they would bind more than is required in the disease; dates are thought to comfort the stomach, and citron seeds to defend the heart from malignity, liquerice to smooth the throat, and hinder hoarsnesse and cause sweat. But these things shall be given long after meat, for it is not fit to sweat presently after meat; some there bee who would have the child wrapped in linnen clothes steeped in this decoction being hot, and afterwards hard wrung forth. Yet I had rather to use bladders or sponges, or hot bricks for the same purpose; certainly a decoction of millet, figges and raisons, with some sugar, causeth sweat powerfully. Neither is it amisse whilst the patient is covered in all other parts of his body, and sweats, to fan his face, for thus the native heat is kept in & so strengthened, and fainting hindred, and a greater excretion of excrementitious humours caused. To which purpose you may also put now and then to the patients nose a *nodulus* made with a little vinegar & water of roses, camphire, the powder of sanders, and other odoriferous things which have a cooling faculty, this also will keepe the nose from pustles.

The child must have no pappe.

How sound sleepe doth haue in this disease. Of purging, bleeding, and sudorificks.

A history.

A sudorifick decoction.

When it is best to procure sweat.

CHAP. III.

What parts must be armed against, and preserved from the Pocks.

How to defend
the eyes.

When the eyes
must not be de-
fended by re-
percussives
onely.

How to defend
the nose.

How the mouth

How the lungs.

How to prevent
pock-arres.

Remedies for
excoriation.



He eyes, nose, throte, lungs, and inward parts ought to be kept freer from the eruption of pustles than the other parts; for that their nature and consistence is more obnoxious to the malignity of this virulency, and they are easlyer corrupted and blemished. Therefore lest the eyes should be hurt, you must defend them when you first begin to suspect the disease, with the eye-lids, also moistening them with rose-water, verjuice or vinegar, and a little Camphire. There are some also who for this purpose make a decoction of Sumach, berry-seeds, pomgranate pills, aloe, sand a little saffron; the juice of sowre pomgranates, and the water of the whites of egges dropped in with rose-water, are good for the same purpose; also womans milke mixed with rose-water and often renewed, and lastly, all such things as have a repercussive quality. Yet if the eyes bee much swolne and red, you shall not use repercussives alone, but mixe therewith discussers and cleansers, such as are fit by a familiarity of nature to strengthen the sight; and let these bee tempered with some fennell or eye-bright water. Then the patient shall not looke upon the light or red things for feare of paine and inflammation; wherefore in the state of the disease when the pain and inflammation of the eyes are at their height, gently drying and discussive things properly conducing to the eyes are most convenient, as washed aloes, tuttye and Antimonic in the water of fennell, eye bright and roses. The formerly mentioned nodulus will preserve the nose, and linnen clothes dipped in the fore-said astringent decoction, put into the nostrils and outwardly applyed. We shall defend the jawes, throate and throttle, and preserve the integrity of the voice by a gargle of oxycrate, or the juice of sowre pomgranates, holding also the grains of them in their mouths, & often rouling them up & down therein, as also by nodula's of the seeds of *psilium*, quinces & the like cold & astringent things. We must provide for the lungs & respiration by syrups of jujubes, violets, roses, white poppyes, pomgranats, water-lillies, and the like. Now when as the pocks are throughly come forth, then may you permit the patient to use somewhat a freer diet, and you must wholly busie your selfe in ripening and evacuating the matter, drying and scailing them. But for the meazels, they are cured by resolution onely, and not by suppuration; the pocks may bee ripened by annoynting them with fresh butter, by fomenting them with a decoction of the roots of mallowes, lillies, figs, line-seeds and the like. After they are ripe, they shall have their heads clipped off with a paire of sizzers, or else bee opened with a golden or silver needle, lest the matter contained in them, should corrode the flesh that lyes thereunder, and after the cure, leave the prints or pockholes behinde it, which would cause some deformity; the *pus*, or matter being evacuated, they shall be dried up with *unguent. rosat.* adding thereto cerusse, litharge, aloes and a little saffron in powder; for these have not onely a faculty to dry, but also to regenerate flesh; for the same purpose the floure of barley and lupines are dissolved or mixed with rose-water, and the affected parts annoynted therewith with a fine linnen ragge; some annoint them with the swathe of bacon boiled in water and wine, then presently strow upon them the floure of barley or lupines, or both of them. Others mixe crude hony newly taken from the combe, with barley floure, and therewithall annoint the pustles so to dry them; being dried up like a scurfe or scab, they annoint them with oyle of roses, violets, almonds, or else with some creame, that they may the sooner fall away, the pustles being broken; tedious itchings sollicite the patients to scratch, whence happens excoriation and filthy ulcers, for scratching is the occasion of greater attraction. Wherefore you shall bind the sick child's hands, and foment the itching parts with a decoction of marsh mallowes, barley and lupines, with the addition of some salt. But if it bee already excoriated, then shall you heale it with *unguent. al-bum camphorat.* adding thereto a little powder of Aloes or *Cinnabaris*, or a little *desiccativum rubrum*. But if notwithstanding all your application of repelling medicines, pustules,

pustles neverthelesse break forth at the eyes, then must they be diligently cured with all manner of *Collyria*, having a care that the inflammation of that part grow not to that bignes, as to break the eies, & that which sometimes happens to drive them forth of their proper orbes. If any crusty ulcers arise in the nostrils, they may be dried and caused to fall away by putting up of oynments. Such as arise in the mouth, palate and throat, with hoarsenesse and difficulty of swallowing, may be helped by gargismes made with barley water, the waters of plantaine and chervill, with some syrups of red roses, or *Diamoron* dissolved therein; the patient shall hold in his mouth sugar of roses or the tablets of *Elect. diatragacanth. frigid.* The Pock-arres left in the face, if they bunch out undecently, shall be clipped away with a paire of sizzers, and then annointed with fresh unguent. citrin. or else with this liniment. *Rx. amyli triticei, & amygdalarum excorticatarum, an. ʒiʒ. gum. tragacanth. ʒʒ. seminis melonum, fabarum siccarum excorticat. farine hordei, an. ʒiiii.* Let them all bee made into fine powder, and then incorporated with rose-water, and so make a liniment, wherewith anoynt the face with a feather; let it bee wiped away in the morning, washing the face with some water and wheat bran; hereto also conduceth *lac virginale*; Goose, ducks and Capons grease are good to smoothe the roughnesse of the skin, as also oile of lillies; hares blood of one newly killed and hot is good to fill and plaine, as also whiten the Pock-holes, if they bee often rubbed therewith. In stead hereof many use the swathe of Bacon rubbed warme thereon; also the distilled waters of beane flowers, lilly roots, reed-roots, egge-shells, and oile of eggs are thought very prevalent to waste and smoothe the Pock-arres.

For the ulcers
of the mouth
and jawes.

To help the un-
sightly scars of
the face.

A Discourse of certaine monstrous creatures which breed against nature in the bodies of men, women, and little children, which may serve as an induction to the ensuing discourse of worms.

As in the *macrocosmos* or bigger world, so in the *microcosmos* or lesser world there are winds, thunders, earthquakes, showres, inundations of waters, sterilities, fertilities, stones, mountaines and sundry sorts of fruits and creatures thence arise. For who can deny but that there is winde contained shut up in flatulent abscesses, and in the guts of those that are troubled with the cholicke? Flatulencies make so great a noyse in divers womens bellies, if so be you stand neare them, that you would think you heard a great number of frogs croaking on the night time: That water is contained in watery abscesses, and the belly of such as have the dropie, is manifested by that cure which is performed by the letting forth of the water; in fits of Agues the whole body is no otherwise shaken and trembles, than the earth when it is heard to bellow, and felt to shake under our feet. He which shall see the stones which are taken out of the bladder, & come from the kidnies and divers other parts of the bodie, cannot deny but that stones are generated in our bodies. Furthermore wee see both men & women who in their face, or some other parts, shew the impression, or imprinted figure of a cherry, plumb, service, fig, mulberry & the like fruit; the cause hereof is thought to be the power of the imagination concurring with the formative faculty, and the tenderesse of the yeelding and waxe-like *embryon*, easie to be brought into any forme or figure by reason of the proper and native humidity. For you shall find that all their mothers whilest they went with them have earnestly desired or longed for such things, which, whilest they have too earnestly agitated in their mindes, they have transferred the shape unto the childe, whilest that they could not enjoy the things themselves. Now who can deny but that bunches on the backe, and large wens resemble mountaines? Who can gainsay, but that squalide sterility may bee assimilated to the hec tick dryness of wasted and consumed persons? and fertility deciphered by the body distended with much flesh and fat, so that the legs can scarce stand under the burden of the belly? But that divers creatures are generated in one creature, that is, in man, and that in sundry parts of him, the following histories shall make it evident.

A comparison
between the big-
ger and lesser
world
The generation
of wind in
mans body.

Of water.

Of stones.

Of fruits from
the first con-
formation.

Hellerius tels that a certaine Italian by frequent smelling to the herbe *Basil* had a Scorpion bred in his braine, which caused long and vehement paine, and at length

*Lib. de moris.
inter cap. 10.*

death; therefore I have here exprest the figure of that Scorpion found when as his braine was opened.

The figure of a Scorpion.

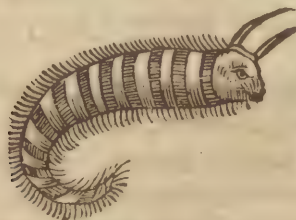


It makes *Hollerius* conjecture of the cause and originall of this Scorpion, probable for that *Chrysippus*, *Dyophanes* and *Pliny* write, that of basill beaten betweene two stones, and laid in the sun, there will come Scorpions.

Lib. 5. de part. morbis cap. 7.

Fernelius writes that in a certaine souldier, who was flat nosed, upon the too long restraint or stoppage of a certaine filthy matter that flowed out of the nose, that there were generated two hairy wormes of the bignesse of ones finger, which at length made him mad, he had no manifest feaver, and he died about the twentieth day: this was their shape, by as much as we can gather by *Fernelius* his words.

The effgies of the wormes mentioned by Fernelius.



A History.

Lewes Duret a man of great learning and credit, told mee that hee had come forth with his urine, after a long and difficult disease, a quick creature, of colour red, but otherwise like in shape a Millepes, that is, a Cheslope, or Hog-louce.

The shape of a Millepes cast forth by urine.



A History.

Count *Charles* of *Mansfield*, last summer troubled with a grievous and continuall feaver, in the duke of *Guises* place cast forth a filthy matter at his yard, in the shape of a live thing almost just in this forme.

The shape of a thing cast forth by urine.



Monstrous creatures also of sundry formes are also generated in the wombes of women; some wiles alone, otherwhiles with a *mola*, and sometimes with a child naturally and well made, as frogs, toads, serpents, lizzards: which therefore the Ancients have termed the Lumbards brethren, for that it was usuall with their women, that together with their naturall and perfect issue they brought into the world wormes, serpents, and monstrous creatures of that kinde generated in their wombes, for that they alwaies more respected the decking of their bodies, than they did their diet. For it happened whilest they fed on fruits, weeds and trash, and such things as were of ill juice, they generated a putride matter, or certainly very subject to putrefaction and corruption, and consequently opportune to generate such imperfect creatures. *Jonbertus* telleth that there were two Italian women, that in one moneth brought forth each of them a monstrous birth; the one that marryed a Tailor, brought forth a thing so little, that is resembled a Rat without a taile; but the other a Gentlewoman, brought forth a larger, for it was of the bignesse of a Cat; both of them were black, and as soone as they came out of the wombe, they ran up high on the wall, and held fast thereon with their nailes. *Licosthenes* writes that in *Anno Dom. 1494.* a woman at *Cracovia*, in the streete which taketh name from the holy Ghost, was delivered of a dead child, who had a serpen fastned upon his back, which fed upon this dead child, as you perceive by this following figure.

*Nicolas Flor.
Gord. lib. 7. c. 18.*

Lib. error populi.

The figure of a serpent fastned to a child.



Levinus Lemnius tels a very strange history to this purpose. Some few yeares agoe (saith he) a certaine woman of the Isle in Flanders, which being with child by a Sailer, her belly swelled up so speedily, that it seemed shee would not bee able to carry her burden to the terme prescribed by nature; her ninth moneth being ended, she calls a midwife, and presently after strong throwes and paines, shee first brought forth a deformed lumpe of flesh, having as it were two handles on the sides, stretched forth to the length and manner of armes, and it moved and panted with a certain vitall motion, after the manner of sponges and sea-nettles; but afterwards there came forth of her wombe a monster with a crooked nose, a long and round necke, terrible eies, a sharpe taile, and wonderfull quick of the feet, it was shaped much after this manner.

*Lib. de oculis. nat.
mir. cap. 8.*

The shape of a monster that came forth of a womans wombe.



As soone as it came into the light it filled the whole roome with a noise and hissing, running to every side to finde out a lurking hole wherein to hide its head, but the women which were present, with a joynt consent fell upon it, and smothered it with cushions, at length the poore woman wearied with long travell, was delivered of a boy, but so evilly entreated and handled by this monster, that it died as soone as it was christened.

*Lib. de divinis
natur. caracte-
rismis.*

Cornelius Gemma a Physician of *Lovaine*, telleth that there were many very monstrous and strange things cast forth both upwards and downewards out of the belly of a certaine maid of *Lovaine*, of the age of fifteene yeares. Amongst the rest, she cast forth at her fundament, together with her excrements, a living creature some foot and halfe long, thicker than ones thumbe, very like an eele, but that it had a very hairy taile; I have here given you the figure of the monster as it was expressed by him.

The figure of a monster that came forth of a maides belly.



A historie.

Master *Peter Barque* and *Claude le Grand*, Surgeons of *Verdun*, lately affirmed to mee that they cured the wife of a certaine Citizen of *Verdun*, which out of an Abscesse broken in the belly, cast forth a great number of wormes, together with the quitture, and these were of the thicknesse of ones finger, with sharpe heads, which so gnawed her guts, that the excrements for a long time came forth at the ulcer, but now she is perfectly recovered.

A historie.

Anthony Bepenius a Physician of *Florence* telleth that one *John Menusierus*, a man of fourty yeares of age, troubled with continuall paines at his stomacke, was often at the point of death, neither found he any helpe by the counsels of many Physicians which hee used. At length comming to have his advice, hee gave him a vomit, by meanes whereof hee cast up a great quantity of corrupt and putride matter, yet was hee not thereby eased of his paine. Therefore he gave him another vomit, by force whereof he cast up much matter like to the former, and together therewith a worme of foure fingers long, having a red round head, of the bignesse of a great pease, covered over the body with a soft downinesse, with a forked taile, in manner of an halfe moone, going upon foure feet, two before, and two behind.

The

The figure of a worme cast forth by vomit.



Why should I mention the prodigious bodies which are found in Abscesses, as stones, chalke, sand, coales, snail-shells, strawes, hay, hornes, haire, and many kinds of living and dead creatures? For there is nothing in the generation of these things (caused by corruption, preceded by much alteration) which may make us admire, or hold us in suspence, especially if we shall consider that nature, the fruitfull parent of all things, hath put divers portions and particles of the universall matter whereof the greater world is composed into this microcosmos, or little world, man; whereby he might the rather seem to be made to the resemblance and form of the greater. Wherefore it so desports it selfe here, that it may counterfeit and resemble all the actions and motions which it useth to performe in the scene of the greater world, in this little one, if so be that matter be not wanting.

The efficient & materiall causes of such things as are preternaturally generated in our bodies.

CHAP. III.

Of the wormes which use to breed in the guts.

A Grosse, viscid and crude humour is the materiall cause of wormes, which having got the beginning of corruption in the stomacke, is quickly carried into the guts, and there it putrefies, having not acquired the forme of laudible *Chylus* in the first concoction. This, for that it is viscid, tenaciously adheres to the guts, neither is it easily evacuated with the other excrements; therefore by delay it further putrefies, & by the efficacy of heat, it turns into the matter and nourishment for wormes. This alimentary humour being consumed, unlesse some fresh supply the want thereof, which may ease their hunger, they move themselves in the guts with great violence, they cause grievous and great paines, yea, and oft-times they creep up to the stomack, and so come forth by the mouth, and sometimes they ascend into the holes of the palate, and come forth at the nose. Wormes are of three sorts; for some are round & long, others broad and long, others short & slender. The first are called by the Ancients, *Teretes*, that is, round; for that they are long and round. The second are named *Tenia*, for that their bodies are long & broad like a rowler or swathe. The third are termed *Ascarides*, for that they commonly wrap themselves up round. Other differences of wormes are taken from their colours, as red, white, black, ash-coloured, yellowish. Some also are hairy, with a great head like the little fish which the French call Chabot, we, a Millers-thumbe; in some diseases many wormes are generated and cast forth by the fundament, as small as haire, and usually of colour white, and these are they which are called *Ascarides*. The diversity of colours in wormes proceedeth not from the like distinct diversity of humours whereof they are generated. For the melancholicke and cholericke humour by their qualities are wholly unfit to generate wormes. But this manifold variety in colour, is by reason of the different corruption of the chylous or phlegmaticke humour whereof they are bred. The long and broad wormes are oftentimes stretched alongst all the guts, being like to a mucous or albuminous substance, and verily I saw one voided by a woman, which was like to a serpent, and some fixe foote long; which ought not to seeme strange, seeing it is noted by the Ancients, that they have seene wormes so long, as the length of the whole guts, that is, seven times the length

How wormes are generated.

The reason that they sometimes come forth at the mouth.

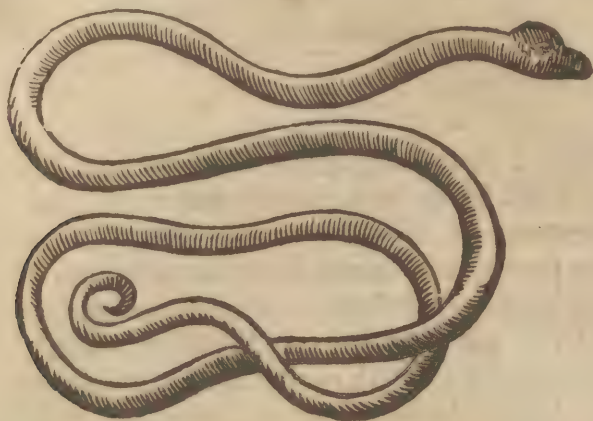
The differences of wormes.

A history.

A history.

length of ones body. *Wierus* writes that he saw a country man who voided a worme eight foot and one inch long, in head and mouth resembling a Ducke, which therefore I have thought good here to expresse.

The figure of a worme, generated in, and cast forth of the Guts.



In observat.

In what places
of the belly
wormes are ge-
nerated.

Ad finem lib. 4.
de morbis.

Signes of
wormes in the
small guts.

Signes of
wormes in the
great guts.
Signes of *Asca-
rides*.

Valeriola affirmeth that he saw a worme above nine foote long. Now as wormes differ in shape, so are their places of generation also different. For the round and long wormes are commonly generated in the smaller guts, the rest in the greater, but especially the *Ascarides*: none breede in the stomacke, as that which is the place of the first concoction. There truely the matter which breedeth these wormes, gets the first rudiment of corruption, but comes to perfection onely in the guts; they breed in some infants in their mothers bellies, by the pravity and corrupt nature of the humour flowing from the mother for the nourishment of the childe, which for that then they doe not expell it by siege, it by delay putrefieth the more, and yeeldes fit matter for the breeding of wormes, as some have observed out of *Hippocrates*. Lastly, wormes breed in people of any age that are Belly-Gods and given to gluttony, as also in such as feed upon meats of ill juice, and apt to corrupt, as crude summer fruits, cheefe, and milke-meates. But to know in what part of the Guts the wormes doe lurk, you must note, that when they are in the small guts, the patients complain of a paine in their stomacke, with a dogge-like appetite, whereby they require many and severall things without reason, a great part of the nourishment being consumed by the wormes lying there; they are also subject to often fainting, by reason of the sympathy which the stomacke, being a part of most exquisite sense, hath with the heart, the nose itches, the breath stinkes, by reason of the exhalations sent up from the meat corrupting in the stomacke; through which occasion they are also given to sleep, but are now and then waked therefrom by suddaine startings and feares; they are held with a continued and slow feaver, a dry cough, a winking with their eielids, and often changing of the colour of their faces. But long and broad wormes, being the innates of the greater guts, shew themselves by stools replenished with many sloughies, here and there resembling the seedes of a Musk-melon or cucumber. *Ascarides* are knowne by the itching they cause in the fundament, causing a sense as if it were Ants running up and downe; causing also *ateneismus*, and falling downe of the fundament. This is the cause of all these symptomes; their sleepe is turbulent and often clamorous, when as hot, acride and subtle vapors, raised by the wormes from the like humor and their foode, are sent up to the head; but sound sleep by the contrary, as when a misty vapour is sent up from a grosse and cold matter. They dream they eate in their sleepe, for that while the wormes doe more greedily consume the chylous matter in the guts, they stirre up the sense of the like action in the phantasie. They grate or gnash their teeth by reason of a certaine convulsifick repletion, the muscles of the temples and jawes being distended by plenty of vapours. A dry cough comes by the consent of the vitall parts serving for respiration, which the naturall, to wit, the *Diaphragma* or midriffe, smit upon by acride vapours, and irritated as though there were some humour to bee expelled by coughing. These same acride

fumes

fumes affailing the orifice of the ventricle, cause either a hicketting, or else a fainting, according to the condition of their consistence, grosse or thin; these carried up to the parts of the face cause an itching of the nose, a darkenesse of the sight, and a suddaine changing of the colour in the cheeks. Great wormes are worse than little ones, red than white, living than dead, many than few, variegated than those of one colour, as those which are signes of a greater corruption. Such as are cast forth bloody and sprinkled with blood, are deadly, for they shew that the substance of the guts is eaten asunder; for oft-times they corrode and perforate the body of the gut wherein they are contained, and thence penetrare into divers parts of the belly, so that they have come forth sometimes at the Navell, having eaten themselves a passage forth, as *Hollerius* affirmeth. When as children troubled with the wormes draw their breath with difficulty, and waxe moist over all their bodies, it is a signe that death is at hand. If at the beginning of sharpe feavers, round wormes come forth alive, it is a signe of a pestilent feaver, the malignity of whose matter they could not endure, but were forced to come forth. But if they be cast forth dead, they are signes of greater corruption in the humours, and of a more venenate malignity.

Why wormes
of divers co-
lours are more
dangerous.

CHAP. V.

What cure to be used for the Wormes.



IN this disease there is but one indication, that is, the exclusion or casting out of the wormes, either alive or dead, forth of the body, as being such that in their whole kinde are against nature; all things must bee shunned which are apt to heap up putrefaction in the body by their corruption, such as are crude fruits, cheese, milke-meats, fishes, and lastly such things as are of a difficult and hard digestion, but prone to corruption. Pappe is fit for children, for that they require moist things, but these ought to answer in a certaine similitude to the consistence and thicknesse of milke, that so they may the more easily be concocted & assimilated, & such only is that pap which is made with wheat flower, not crude, but baked in an oven, that the pappe made therewith may not be too viscide nor thicke, if it should onely bee boyled in a panne as much as the milke would require; or else the milke would bee too terrestriall, or too waterish, all the fatty portion thereof being resolved, the cheesy and whayish portion remaining, if it should boile so much as were necessary for the full boiling of the crude meate; they which use meale otherwise in pappe yeild matter for the generating of grosse and viscide humours in the stomacke, whence happens obstruction in the first veines and substance of the liver, by obstruction wormes breede in the guts, and the stone in the kidneyes and bladder. The patient must be fed often, and with meates of good juice, lest the worms through want of nourishment, should gnaw the substance of the guts. Now when as such things breed of a putride matter, the patient shall be purged, and the putrefaction repress by medicines mentioned in our treatise of the plague. For the quick killing and casting of them forth, syrupe of Succory, or of lemmons with rubarbe, a little Treacle, or Mithridate, is a singular medicine, if there be no feaver; you may also for the same purpose use this following medicine. *R. cornu cervi, pul. rasur. eboris, an. ʒ i ʒ. sem. tanacet. & contra verm. an. ʒ i. fiat decoctio pro parva dosi, in colatura infunder hei optimi, ʒ i. cinam. ʒ i. dissolve syrui de absinthio ʒ ʒ. make a portion, give it in the morning three houres before any broath. Oyle of Olives drunke, kills wormes, as also water of knot-grasse drunke with milke, and in like manner all bitter things. Yet I could first with them to give a glyster made of milke, hony and sugar, without oyles and bitter things, lest shunning thereof, they leave the lower guts, and come upwards, for this is naturall to wormes, to shunne bitter things, and follow sweet things. Whence you may learne, that to the bitter things which you give by the mouth, you must alwaies mixe sweet things, that allured by the sweetness, they may devour them more greedily, that so they may kill them. Therefore I*

The generall
indications of
curing the
wormes.

Wherefore, and
wherewith such
as have the
wormes must
be purged.

would

Harts-horne
good against
the wormes.

Suppositories
against the
Ascarides.

A plaster a-
gainst the
wormes.

A caution.

A feaver some-
times a symp-
tome and some-
times a disease.

would with milke and Sugar, mixe the seeds of centaury, rue, wormewood, aloes, and the like: harts-horne is very effectuall against wormes, wherefore you may infuse the shavings thereof in the water or drinke that the patient drinke, as also to boile some thereof in his brothes. So also treacle drunke or taken in broth, killeth the wormes; purslaine boiled in brothes, and distilled and drunke, is also good against the worms, as also succory and mints, also a decoction of the lesser house-leek and sebestens given with sugar before meate; it is no lesse effectuall to put worme-seeds in their pap, and in roasted apples, and so to give them it. Also you may make suppositories after this manner, and put them up into the fundament. *R. coralli sub- albi, rasura eboris, cornu cervi usti, ireos an. ʒ ii. mellis albi ʒ ii ss. aqua centimodia q. s. ad omnia concorporanda, fiant Glandes*: let one be put up every day, of the weight of ʒ ii. for children; these suppositories are chiefly to bee used for *Ascarides*, as those which adhere to the right gut. To such children as can take nothing by the mouth, you shall apply cataplasmes to their navells made of the pouders of cummin seeds, the floure of lupines, worme-wood, southerne wood, tanfic, the leaves of Artichokes, rue, the pouders of *coloquintida*, citron seeds, aloes, arsemart, horse mint, peach leaves, *Costus amarus*, *Zedoaria*, sope and oxe gall. Such cataplasmes are oft times spread over all the belly, mixing therewith astringent things for the strengthening of the part, as oile of myrtles, Quinces and mastich; you may also apply a great onion hollowed in the midst, and filled with Aloes and Treacle, and so roasted in the embers, then beaten with bitter almonds, and an oxe gall. Also you may make emplasters of bitter things, as this which followes. *R. fellis bubuli, & succi absinthii, an. ʒ ii. colocyn. ʒ i. terantur & misceantur simul, incorporentur cum farina lupinorum*: make hereof an emplaster to be laid upon the Navell.

Liniments and ointments may bee also made for the same purpose to anoint the belly, you may also make plasters for the navell of *Pillula Ruff.* anointing in the meane time the fundament with hony and sugar, that they may bee chafed from above with bitter things, and allured downwards with sweete things. Or else take wormes that have beene cast forth, dry them in an iron pan over the fire, then powder them, and give them with wine or some other liquor to bee drunke, for so they are thought quickly to kill the rest of the wormes. Hereto also conduceth the juice of citrons, drunke with the oile of bitter almonds, or fallade oile. Also some make bathes against this affect of wormewood, galls, peach leaves boiled in water, and then bathe the childe therein.

But in curing the wormes, you must observe that this disease is oft times entangled with another more grievous disease, as an acute and burning feaver, a fluxe or scouring, and the like, in which (as for example sake) a feaver being present and conjoyned therewith, if you shall give wormseeds, old Treacle, myrrhe, aloes, you shall encrease the feaver and fluxe, for that bitter things are very contrary to the cure of these affects. But if, on the contrary, in a fluxe whereby the wormes are excluded, you shall give corall, and the floure of Lentiles, you shall augment the feaver, making the matter more contumacious by dry and astringent things. Therefore the Physitian shall be carefull in considering whether the feaver bee a symptome of the wormes, or on the contrary it bee essentiall, and not symptomaticke, that this being knowne, hee may principally insit in the use of such medicines as resist both affects, as purging and bitterish in a feaver and wormes, but bitter and somewhat astringive things in the wormes and fluxe.

CHAP. VI.

A short description of the Elephantiasis or Leprosie, and of the causes thereof.

THis disease is termed *Elephantiasis* because the skinne of such as are troubled therewith, is rough, scabious, wrinkled and unequall, like the skin of an Elephant. Yet this name may seem to be imposed thereon by reason of the greatnesse of the disease. Some from the opinion of the Arabians have termed it *Lepra* or Leprosie (but improperly, for the *Lepra* is a kinde of Scab and disease of the skinne, which is vulgarly called *Malum sancti maris*) which word for the present we will use, as that which prevails by custome and antiquity. Now the Leprosie (according to *Paulus*) is a Cancer of the whole body, the which (as *Avicen* adds) corrupts the complexion, forme and figure of the members. *Galien* thinks the cause ariseth from the error of the sanguifying faculty, through whose default the assimilation in the flesh and habite of the body is depraved, and much changed from it selfe, and the rule of nature. But *ad Glauconem*, hee defines this disease, An effusion of troubled or grosse blood into the veines and habit of the whole body. This disease is judged great, for that it partakes of a certaine venenate virulency, depraving the members and comelinesse of the whole body. Now it appears that the Leprosie partakes of a certaine venenate virulency by this, that such as are melancholicke in the whole habit of their bodies, are not leprous. Now this disease is composed of three differences of diseases. First it consists of a distemper against nature, as that which at the beginning is hot and dry, and at length the ebullition of the humours ceasing, and the heat dispersed, it becomes cold and dry, which is the conjunct cause of this symptome. Also it consists of an evill composition or conformation, for that it depraves the figure and beauty of the parts. Also it consists of a solution of continuity, when as the flesh and skin are cleft in divers parts with ulcers and chops: the leprosie hath for the most part 3. generall causes, that is, the primitive, antecedent, & conjunct: the primitive cause is either from the first conformation, or comes to them after they are born. It is thought to be in him from the first conformation, who was conceived of depraved & corrupt menstruous blood, & such as are inclined to melancholly; who was begot of the leprous seed of one or both his parents, for leprous persons generate leprous, because the principall parts being tainted and corrupted with a melancholy and venenate juice, it must necessarily follow that the whole masse of blood and seed that falls from it, and the whole body should also be vitiated. This cause happens to those that are already born, by long staying & inhabiting in maritime countries, whereas the grosse and misty aire, in successe of time, induceth the like fault into the humours of the body; for that, according to *Hippocrates*, such as the aire is, such is the spirit, and such the humours. Also long abiding in very hot places, because the blood is torrifed by heate, but in cold places, for that they incrassate, and congealing the spirits, doe after a manner stupefie, may bee thought the primitive causes of this disease. Thus in some places of *Germany* there are divers leprous persons, but they are more frequent in *Spaine* and over all *Africa*, then in all the world beside, and in *Languedoc*, *Provence* and *Guyenne*, are more than in whole *France* besides. Familiarity, copulation, and cohabitation with leprous persons, may be reckoned amongst the causes thereof, because they transferre this disease to their familiars by their breath, sweat and spittle left on the edges of the pots or cuppes. This disease is also caused by the too frequent use of salt, spiced, acride and grosse meates, as the flesh of Swine, Asses, Beares, Pulse, milke-meats; so also grosse and strong wines, drunkenness, gluttony, a laborious life, full of sorrow and cares, for that they incrassate, and as it were burne the blood. But the retention of melancholy excrements, as the suppression of the hæmorrhoids, courses, small pockes and meazells, as also a quartaine fever accustomed to come at set times; the drying up of old ulcers, for that they defile the masse of the blood with a melancholy drosse and filth. Now you must understand that the cause of the leprosie by the retention of the superfluities, happens because the corrupt blood is not evacua-

Lib. 2. cap. 11.

There is a certaine hidden virulency in the Leprosie.

The primitive cause of a Leprosie. How they may be leprous from their first conformation.

The antecedent cause of a Leprosie.

The conjunct cause.
How it comes to be deadly.

red, but regurgitates over the whole body, and corrupts the blood that should nourish all the members; wherefore the assimilative faculty cannot well assimilate by reason of the corruption and default of the juice, and thus in conclusion the Leprosie is caused. The antecedent causes are the humours disposed to adustion and corruption into melancholy by the torride heat; for in bodies possessed with such heat, the humours by adustion easily turne into melancholy, which in time acquiring the malignity and corruption of a virulent and venenate quality, yeelds a beginning and essence to the leprosie. The conjunct causes are the melancholy humors which are now partakers of a venenate and maligne quality, and spread over the whole habite of the body, corrupting and destroying it first by a hot and dry distemper, and then by a cold and dry, contrary to the beginnings of life. For hence inevitable death must ensue, because our life consists in the moderation of heate and moisture.

CHAP. VII.

The signes of a Leprosie, breeding, present, and already confirmed.



The beginning of a Leprosie.

The encrease.

The state.

The declension.

The first signe of the Leprosie.

II.

He disposition of the body and humors to a Leprosie is shewed by the change of the native and fresh colour of the face, by that affect of the face, which is commonly called *Gutta rosacea*, red & blackish suffusions and pustles, the falling away of the haire, a great thirst, and a drinesse of the mouth both by night & day, a stinking breath, little ulcers in the mouth, the change of the voice to hoarsenesse, a desire of ventry above nature and custome. Now there are foure times of this disease, the beginning, encrease, state and declension. The beginning is when as the malignity hath not yet gone further than the inner parts and bowells, wherupon the strength must needs be more languid. The encrease is when as the virulency comes forth, & the signs & symptoms are every day encreased in number & strength. The state is when as the members are exulcerated. The declension is, when as the aspect of the face is horride, the extreme parts fall away by the profundity and malignity of the ulcers, so that none, no not of the common sort of people, can doubt of the disease. According to the doctrine of the Antients, wee must in searching out of the signes of this disease being present, have chiefe regard to the head. For the signes of diseases more properly and truly shew themselves in the face, by reason of the softnesse and rarity of the substance therof, and the tenuity of the skin that covers it; wherefore a blacke and adust humour diffused thereunder, easily shewes it selfe, and that not onely by the mutation of the colour, but also of the Character and bulke, and oft times by manifest hurting it. Wherefore you must observe in the head whether it have scaules, and whether in the place of those haire that are fallen away, others more tender, short and rare grow up, which is likely to happen through defect of fit nourishment to preserve and generate haire, through corruption of the hairy scalpe that should be stored with such nourishment, and of the habit it selfe, and through the unfitness thereof to containe haire; lastly by the acrimony of the vapours sent up from the adust humours and entrailes, fretting asunder the rootes of the haire. But if not onely the haire, but also some portion of the skin and flesh about the rootes of the haire, come away by pulling, it is an argument of perfect corruption: let this therefore be the first sign of a leprosie. A second & very certain signe is, a numerous & manifest circumscription of round and hard pushes or pustles under the eye-browes, & behind the eares and in severall places of the face, resembling round and hard kernells, occasioned by the default of the assimilating faculty. The cause of this default is the grossenesse of the flowing nourishment, by which meanes it being impacted, and stopping in the straitnesse of the way, it growes round as it were compassed about in the place whereas it sticks, and by the means of the crudity, for that it is not assimilated, and by delay, it is further hardned. The third

third

Third signe is, the more contract and exact roundnesse of the eares, their grossenesse, and as it were grainy spissitude or densenesse; the cause of their roundness is the consumption of the flaps & fleshy part through want of nourishment, and excess of heat; but the occasion of their grainy spissitude is the grossnesse of the earthy nourishment flowing thither. The fourth sign is a lion-like wrinkling of the forehead, which is the reason that some terme this disease *morbus leoninus*; the cause hereof is the great drynesse of the habit of the body, which also is the reason that the barke of an old oak is rough and wrinkled. The fifth is, the exact roundnesse of the eyes, and their fixt and immoveable steddinesse; verily the eyes are naturally almost round, yet they appear obtuse and somewhat broad on the foreside, but end in a *Conus* on the hind part, by reason of the concurrence and figure of the muscles and fat investing them. Therefore these being consumed either through defect of laudible nourishment, or else by the acrimony of the flowing humour, they are restored to their proper figure & roundness. Now the muscles which moved the eyes being consumed, and the fat which facilitated their motion wasted, it comes to passe that they stand stiffe and unmoveable, being destitute of the parts yeelding motion, and the facility thereof. The sixth signe is, the nostrils flat outwardly, but inwardly strait and contracted, that is, an earthy & grosse humour forced from within outwards, which swels the sides or edges of the nostrils; whence it is, that the passages of the nose appear as it were obstructed by the thicknesse of this humour; but they are depressed and flatted by reason of the rest of the face and all the neighbouring parts swoln more than their wont; adde hereto that the partition is consumed by the acrimony of the corroding and ulcerating humour sent thither, which makes them necessarily to be deprest, & send forth bloody scabs. The seventh, is the lifting up, thicknesse and swelling of the lips, the filthinesse, stinke and corrosion of the gums by acride vapours rising to the mouth; but the lips of Leprous persons are more swolne by the internall heat burning and incrassating the humours, as the outward heat of the Sun doth in the Moores. The eighth signe is the swelling & blacknesse of the tongue, and as it were varicous veins lying under it; because the tongue, being by nature spongius and rare, is easily stored with excrementitious humours, sent from the inner parts unto the habit of the body: which same is the cause why the grandules placed about the tongue above and below, are swolne hard & round, no otherwise than scrophulous or meazled swine. Lastly, all their face riseth in red bunches or pushes, and is over-spread with a duskie and obscure redness; the eyes are fiery, fierce and fixed, by a melancholick chachedick disposition of the whole body, manifest signes whereof appeare in the face by reason of the forementioned causes; yet some leprous persons have their faces tinctured with a yellowish, others with a whitish colour, according to the condition of the humor, which serves for a *Basis* to the leprous malignity. For hence Physicians affirme that there are three sorts of Leprosies, one of a redish black colour, consisting in a melancholick humour; another of a yellowish Greene, in a cholericke humour; another in a whitish yellow, grounded upon adust phlegme. The ninth signe is a stinking of the breath, as also of all the excrements proceeding from leprous bodies, by reason of the malignity conceived in the humours. The tenth is, a hoarsnesse, a shaking, harsh and obscure voyce coming as it were out of the nose, by reason of the lungs, recurrent nerves, and muscles of the throat tainted with the grossnesse of a virulent and adust humour; the forementioned constriction & obstruction of the inner passage of the nose; and lastly, the asperity and inequality of the weazon by immoderate drynesse, as it happens to such as have drunk plentifully of strong wines without any mixture. This immoderate drinessse of the muscles serving for respiration makes them to bee troubled with a difficulty of breathing. The eleventh signe is very observable, which is a Morpew or defædation of all the skin, with a dry roughnesse and grainy inequality, such as appears in the skins of plucked geese, with many tetters on every side, a filthy scab, and ulcers not casting off onely a branlike scurfe, but also scales and crusts. The cause of this dry scab, is the heat of the burning bowels & humours, unequally contracting and wrinkling the skin, no otherwise than as leather is wrinkled by the heat of the Sun or fire. The cause of the filthy scab & serpiginous ulcers, is the eating and corroding condition of the melancholy humour, and the venenate corruption,

IIII.
Why it is called
morbus leoninus.

V.

VI.

VII.

VIII.

IX.

X.

XI.

- it also being the author of corruption, so that it may be no marvell if the digestive faculty of the liver being spoyled, the assimilative of a malignant and unfit matter sent into the habit of the body cannot well nor fitly performe that which may be for the bodies good. The twelfth is, the sense of a certain pricking, as it were of goads or needles over all the skin, caused by an acride vapour hindered from passing forth, and intercepted by the thicknesse of the skin. The thirteenth is a consumption and emaciation of the muscles which are betwene the thumbe and fore-finger, not onely by reason that the nourishing and assimilating faculties want fit matter wherewith they may repaire the losse of these parts, for that is common to these with the rest of the body, but because these muscles naturally rise up unto a certaine mountainous tumor, therefore their depression is the more manifest. And this is the cause that the shoulders of leprous persons stand out like wings; to wit, the emaciation of the inner part of the muscle *Trapezites*. The fourteenth signe is the diminution of sense, or a numbnesse over all the body by reason that the nerves are obstructed by the thicknesse of the melancholick humour hindring the free passage of the animal spirit, that it cannot come to the parts that should receive sense, these in the interim remaining free which are sent into the muscles for motions sake, and by this note I chiefly make tryall of leprous persons, thrusting a somewhat long and thick needle somewhat deep into the great tendon endued with most exquisite sense, which runs to the heel, which, if they do not well feele, I conclude, that they are certainly leprous. Now, for that they thus lose their sense, their motion remaining entire, the cause hereof is that the nerves which are disseminated to the skin are more affected, and those that run into the muscles are not so much; & therefore when as you prick them somewhat deep, they feel the prick, which they do not in the surface of the skin. The fifteenth is the corruption of the extreme parts possessed by putrefaction and a gangrene, by reason of the corruption of the humours sent thither by the strength of the bowels, infecting with the like tainture the parts wherein they remain: adde hereto that the animal sensitive faculty is there decayed, and as often as any faculty hath forsaken any part, the rest presently after a manner neglect it. The sixteenth is, they are troubled with terrible dreames, for they seeme in their sleep to see divels, serpents, dungeons, graves, dead bodies, and the like, by reason of the black vapours of the melancholicke humour troubling the phantasie with black and dismall visions, by which reason also such as are bitten of a mad dog feare the water. The seventeenth is, that at the beginning and in the increase of the disease they are subtle, crafty and furious by reason of the heat of the humours & blood; but at length in the state and declension they become crafty and suspicious, the heat and burning of the blood and entrails decaying by little and little; therefore then fearing all things whereof there is no cause, & distrusting of their owne strength they endeavour by craft, maliciously to circumvent those with whom they deal, for that they perceive their powers to faile them. The eighteenth is, a desire of venery above their nature, both for that they are inwardly burned with a strange heat, as also by the mixture of flatulencies therewith (for whole generation the melancholick humour is most fit) which are agitated, & violently carried through the veins and genitall parts by the preternaturall heat; but at length when this heate is cooled, and that they are fallen into a hot and dry distemper, they mightily abhor venery, which then would bee very hurtfull to them, as it also is at the beginning of the disease, because they have small store of spirits and native heat, both which are dissipated by venery. The nineteenth is, the so great thicknesse of their grosse and livide blood, that if you wash it, you may finde a sandy matter therein, as some have found by experience, by reason of the great adustion and aflation thereof. The twentieth is, the languidnesse & weaknesse of the pulse (by reason of the oppression of the vitall and pulsfick faculty by a cloud of grosse vapours). Herewith also their urine sometimes is thick and troubled, like the urine of carriage beasts, if the urenary vessels be permeable and free; otherwise it is thin, if there be obstruction, which only suffers that which is thin to flow forth by the urenary passages; now the urine is oftentimes of a pale ash-colour, and oftentimes it smells like as the other excrements do in this disease. Verily there are many other signes of the Leprosie, as the slownesse of the belly by reason of the heat of the liver, often belchings by reason that the stomach is troubled

bled by the refluxe of a melancholy humour, frequent sneezing by reason of the fullnesse of the braine; to these, this may be added most frequently, that the face and all the skin is unctuous or greasie, so that water powred thereon, will not in any place adhere thereto: I conceive it is by the internall heat dissolving the fat that lies under the skin, which therefore alwaies lookes as if it were greased or anointed therewith in leprous persons. Now of these forementioned signes, some are univocall, that is, which truly and necessarily shew the Leprosie: other some are equivocall or common, that is, which conduce as well to the knowledge of other diseases as this. To conclude, that assuredly is a Leprosie which is accompanied with all, or certainly the most part of these forementioned signes.

Why their faces
seeme to bee
greasie.

CHAP. VIII.

Of Prognosticks in the Leprosie; and how to provide for such as stand in feare thereof.



HHe Leprosie is a disease which passeth to the issue, as contagious almost as the plague, scarce curable at the beginning, uncurable when as it is confirmed, because it is a *Cancer* of the whole body; now if some one *Cancer* of some one part shall take deepe root therein, it is judged uncurable. Furthermore the remedies which to this day have bin found out against this disease, are judged inferiour and unequall in strength thereto. Besides, the signes of this disease doe not outwardly shew themselves before that the bowels be seized upon, possessed and corrupted by the malignity of the humour, especially in such as have the white Leprosie, sundry of which you may see about *Burdeaux*, & in little *Brittain*, who notwithstanding inwardly burn with so great heat, that it will suddenly wrinkle and wither an apple held a short while in their hand, as if it had laid for many daies in the Sun. There is another thing that increaseth the difficulty of this disease, which is an equall pravity of the three principall faculties whereby life is preserved. The deceitfull and terrible visions in the sleepe, and numnesse in feeling, argue the depravation of the animall faculty; now the weaknesse of the vitall faculty is shewed by the weaknesse of the pulse, the obscurity of the hoarse and jarring voice, the difficulty of breathing, and stinking breath; the decay of the naturall is manifested by the depravation of the work of the liver in sanguification, whence the first and principall cause of this harme ariseth. Now because wee cannot promise cure to such as have a confirmed Leprosie; and that we dare not do it to such as have been troubled therewith but for a short space, it remains that we briefly shew how to free such as are ready to fall into so fearefull a disease. Such therefore must first of all shun all things in diet and course of life whereby the blood and humours may be too vehemently heated, whereof we have formerly made some mention. Let them make choice of meats of good or indifferent juice, such as we shall describe in treating of the diet of such as are sick of the plague; purging, bleeding, bathing, cupping, to evacuate the impurity of the blood, and mitigate the heat of the liver, shall bee prescribed by some learned Physician. *Valesius de Tarenta* much commends gelding in this case, neither do I think it can be disliked. For men subject to this disease may be effeminated by the amputation of their testicles, and so degenerate into a womanish nature, and the heat of the liver boyling the blood, being extinguished, they become cold & moist, which temper is directly contrary to the hot & dry distemper of Leprous persons; besides the Leprous being thus deprived of the faculty of generation, that contagion of this disease is taken away which spreadeth and is diffused amongst mankind by the propagation of their issue.

Why the Leprosie is uncurable.

The cure.

Their diet.

Gelding good against the Leprosie.

The End of the Twentieth Booke.

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OF POYSONS, AND OF THE BITING OF A MAD DOGGE, AND THE BI- TINGS AND STINGINGS OF OTHER VENEMOUS CREATURES.

THE ONE AND TWENTIETH BOOK.

CHAP. I.

The cause of writing this Treatise of Poysons.

IVE reasons have principally moved me to undertake to write this Treatise of poysons, according to the opinion of the Ancients. The first is, that I might instruct the Surgeon what remedies must presently be used to such as are hurt by poysons, in the interim whilst greater meanes may bee expected from a Physician. The second is, that hee may know by certaine signes and notes such as are poysoned or hurt by poysonous meanes, and so make report thereof to the Judges, or to such as it may concerne. The third is, that those Gentlemen and others who live in the Countrey, and farre from Cities and store of greater meanes, may learne something by my labours by which they may helpe their friends bitten by an Adder, madde Dogge, or other poysonous creature, in so dangerous, sudden and usuall a case. The fourth is, that every one may beware of poysons, and know their symptomes when present, that being knowne, they may speedily seeke for a remedie. The fifth is, that by this my labour all men may know what my good-will is, and how well minded I am towards the common wealth in generall, and each man in particular, to the glory of God. I doe not here so much arme malicious and wicked persons to hurt, as Surgeons to provide to helpe and defend each mans life against poyson; which they did not understand, or at least seemed not so to doe, which taking this my labour in evill part, have maliciously interpreted my meaning.

But now at length, that wee may come to the matter; I will begin at the generall division of poysons, and then handle each *species* thereof severally: but first let us give this rule; That, Poyson is that which either outwardly applyed or struck in, or inwardly taken into the body, hath power to kill it, no otherwise, than meate well drest is apt to nourish it. For *Conciliator* writes, that the properties of poyson are contrary to nourishments in their whole substance, for as nourishment is turned into blood, and in each part of the body whereto it is applyed to nourish, by perfect assimilation is substituted in the place of that portion which flowes away each moment.

What is to be
accounted poy-
son.

Thus

The differences
of poysons.

All poysons
have not a pe-
culiar Antipa-
thy with the
heart.

Thus on the contrary poyson turnes our bodies into a nature like it selfe and venerate, for as every agent imprints the force and qualities thereof in the subje& patient, thus poyson by the immoderation of faculties in their whole nature contrary to us, changerh our substance into its nature, no otherwise than fire turneth chaffe in a moment into its owne nature, and so consumes it. Therefore it is truly delivered by the Ancients, who have diligently pryed into the faculties of naturall things, that it is Poyson that may kill men by destroying and corrupting their temper, and the composition and conformation of the body. Now all poysons are said to proceed either from the corrupt aire, or from living creatures, plants and mineralls, or by an artificial malignity in distilling, subliming and diversly mixing of poysonous and fuming things. Hence arise sundry differences of poysons; neither doe they all worke after the same manner; for some corrupt our nature by the unmeasurableness of the manifest and elementary qualities whereof they consist, others from a specifick and occult propertie. Hence it is that some kill sooner than other some; neither is it true, that all of them presently assaile the heart, but others are naturally at deadly strife with other parts of the body, as *Cantharides* with the bladder, the sea Hare with the lungs, the *Torpedo* with the hands, which it stupefieth, though the fishers rod bee betwixt them. Thus of medicines, there are some which are apt presently to comfort and strengthen the heart; others the brain, as *sacchar*; others the stomach, as *Cinnamon*; Also there are some poysons which work both waies, that is, by manifest and occult qualities, as *Euphorbium*; for that both by the excessive heate and the whole substance, or the discord of the whole substance with ours, corrupts our nature. An argument hereof is, that Treacle, which by its quality is manifestly hot, infringeth the force thereof, as also of all others of an occult property. Poysons which work by an occult and specifick property, do not therefore doe it, because they are too immoderately hot, cold, dry, moist; but for that they are absolutely such, and have that essence from the stars and coelestiall influence, which is apt to dissolve and destroy the strength of mans body, because being taken, but even in a small quantity, yet are they of so pernicious a quality, that they kill almost in a moment. Now poysons do not onely kill being taken into the body, but some being put or applyed outwardly; neither doe venomous creatures only harme by their stinging and biting, but also by their excrements, as spittle, bloud, the touch and breath.

CHAP. II.

*How poysons being small in quantity, may by their only touch
cause so great alterations.*



It seemeth strange to many, how it may come to passe, that poyson, taken or admitted in a small quantity, may almost in a moment produce so pernicious effects over all the body, and all the parts, faculties, and actions, so that being admitted but in a little quantity, it swels up the body into a great bignesse. Neither ought it to seeme lesse strange, how Antidotes and Counter-poysons, which are opposed to poyson, can so suddenly breake and weaken the great and pernicious effects thereof, being it is not likely that so small a particle of poyson or Antidote can divide it selfe into so many, and so far severed particles of our body. There are some (saith *Galien*) who thinke that some things by touch onely, by the power of their quality, may alter those things which are next to them, and that this appeares plainly in the sea *Torpedo*, as that which hath so powerfull a quality, that it can send it alongst the fishers rod to the hand, and so make it become torpide or numbe. But on the contrary, Philosophers teach, that accidents, such as qualities are, cannot without their subjects remove and diffuse themselves into other subjects. Therefore *Galens* other answer is more agreeable to reason, that so many and great effects of poysons and remedies arise either from a certaine spirit or subtle humidity; not truly, for that this spirit and subtle humidity may be disperied over the whole body and all the parts thereof which it affects,

Cap. 5. lib. 6. de
locis affect.

fects, but that little, which is entred the body, as cast in by the stroake of a Spider, or the sting of a Scorpion, infects and corrupts all the next parts by contagion with the like quality, these others that are next to them, untill from an exceeding small portion of the bloud, if the stroake shall light into the veines, it shall spread over the whole masse of bloud; or of phlegme, if the poyson shall chance to come to the stomacke, and so the force thereof shall bee propagated and diffused over all the humours and bowels. The doubt of Antidotes is lesse, for these being taken in greater quantity, when they shal come into the stomack, warmed by the heat of the place, they become hot, & send forth vapours, which suddenly diffused over the body by the subtilty of their substance, doe by their contrary forces dull and weaken the malignity of the poyson. Wherefore you may often see when as Antidotes are given in lesse quantity than is fit, that they are lesse prevalent, neither doe they answer to our expectation in overcoming the malignity of the poyson; so that it must necessarily follow that these must not onely in qualities, but also in quantiy bee superiour to poysons.

The true reason
of the wondrous
effects of poy-
sons,

CHAP. III.

Whether there be any such poysons as will kill at a set time?



O the propounded question; whether there may be poysons which within a certaine and definite time (put case a moneth or yeare) may kill men, *Theophrastus* thus answers; of poysons, some more speedily performe their parts, others more slowly, yet may you finde no such as will kill in set limits of time, according to the will and desire of men. For that some kill sooner or later than others; they do not this of their owne or proper nature, as Physicians rightly judge, but because the subject upon which they light, doth more or lesse resist or yeeld to their efficacie. Experience sheweth the truth hereof; for the same sort of poyson in the same weight and measure given to sundry men of different tempers and complexions, will kill one in an houre, another in fixe houres, or in a day, and on the contrary will not so much as hurt some third man. You may also observe the same in purging medicines. For the same purge given to divers men in the same proportion, will purge some sooner, some later, some more sparingly, others more plentifully, and other some not at all; also with some it will worke gently, with other some with paine and gripings. Of which diversity there can no other cause be assigned, than mens different natures in complexion & temper, which no man can so exactly know and comprehend, as to have certain knowledge thereof, as how much and how long the native heat can resist and labour against the strength of the poyson, or how pervious or open the passages of the body may bee whereby the poyson may arrive at the heart and principall parts. For in such (for example sake) as have the passages of their arteries more large, the poyson may more readily and speedily enter into the heart together with the aire that is continually drawn into the body.

No poysons kill
in a set time.

How poysons
come to kill soe-
ner or later.

CHAP. IIII.

Whether such creatures as feed upon poysonous things be also poysonous, and whether they may be eaten safely and without harme?



Ducks, Storkes, Hernes, Peacocks, Turkies, and other birds, feed upon Toads, Vipers, Aspes, Snakes, Scorpions, Spiders, Caterpillers, & other venomous things. Wherefore it is worthy the questioning, whether such like creatures nourished with such food, can kill or poyson such persons as shall afterward eat them? *Matthiolus* writes that all late Authors, who have treated of poysons, to be absolutely of this opinion, That men may safely and without any danger feed upon such creatures, for that they convert the beasts in-

Such things as
feed upon poy-
son may be ea-
ten without
danger.

*Lib. de simp.
facult.*

The occasion of
sudden death
in many.

to their nature after they have eaten them, and on the contrary, are not changed by them. This reason though very probable, yet doth it not make these beasts to be wholly harmlesse, especially if they be often eaten or fed upon. *Dioscorides* and *Galen* seeme to maintaine this opinion, whereas they write, that the milke, which is nothing else than the relented bloud, of such beasts as feed upon scammonie, hellebore, and spurge, purgeth violently. Therefore Physicians, desirous to purge a sucking childe, give purges to the nurses, whence their milke becomming purging, becomes both meat and medicine to the childe. The flesh of Thrushes, which feed upon Juniper berries, savours of Juniper. Birds that are fed with worme-wood or Garlike, either tast bitter, or have the strong sent of Garlike. Whittings taken with garlike, so smell thereof, that they will not forgoe that smell or taste by any salting, frying or boyling, for which sole reason, many who hate garlike, are forced to abstain from these fishes. The flesh of Rabbits that feed upon Pennyroyall and Juniper, savour of them; Physicians with that Goats, Cows, and Asses, whose milke they would use for Consumptions or other diseases, should bee fed some space before, and every day with these or these herbs which they deeme fit for the curing of this or that disease. For *Galen* affirms that hee doubts not, but that in successe of time the flesh of creatures will be changed by the meats whereon they feed, and at length savour thereof. Therefore I do not allow that the flesh of such things as feed upon venomous things should be eaten for food, unlesse it bee some long space after they have disused such repast, and that all the venome bee digested and overcome by the efficacy of their proper heat, so that nothing thereof may remaine in tast, smell or substance, but bee all vanished away. For many dye suddenly, the cause of whose deaths are unknowne, which peradventure was from nothing else, but the sympathy and antipathy of bodies, for that these things cause death and disease to some, that nourish othersome [according to our vulgar English proverbe; That which is one mans meate is another mans Poyson.]

CHAP. V.

The generall signes of such as are poysoned.

Common signes
of such as are
poysoned.



Signes of hot
poysons.

EE will first declare what the generall signes of poyson are, and then will we descend to particulars, whereby we may pronounce that one is poysoned with this or that poyson. We certainly know that a man is poysoned, when as hee complains of a great heaviness of his whole body, so that hee is weary of himselfe; when as some horrid and loathsome taste sweats out from the orifice of the stomacke to the mouth and tongue, wholly different from that taste that meat, howsoever corrupted, can send up: when as the colour of the face changerh suddenly, somewhiles to blacke, sometimes to yellow, or any other colour, much differing from the common custome of man; when nauseousnesse with frequent vomiting, troubleth the patient, and that hee is molested with so great unquietnesse, that all things may seeme to bee turned upside downe. Wee know that the poyson workes by the proper, and from the whole substance, when as without any manifest sense of great heate or coldnesse, the patient sownes often with cold sweats, for usually such poysons have no certaine and distinct part wherewith they are at enmity, as *cantbarides* have with the bladder. But as they worke by their whole substance, and an occult propriety of forme; so doe they presently and directly assaile the heart, our essence and life, and the fortresse and beginning of the vitall faculty. Now will wee shew the signes whereby poysons, that worke by manifest and elementary qualities, may be knowne. Those who exceed in heate, burne or make an impression of heat in the tongue, the mouth, throate, stomacke, guts, and all the inner parts, with great thirst, unquietnesse, and perpetuall sweats. But if to their excesse of heate they bee accompanied with a corroding and putrefying quality, as Arsenicke, Sublimate, Rose-ager or Rats-bane, Verdegreece, Orpiment, and the like, they then cause in the

stomack

stomacke and guts intolerable pricking paines, rumblings in the belly, and continuall and intolerable thirst. These are succeeded by vomitings, with sweats sometimes hor, sometimes cold, with swoonings, whence suddaine death ensues. Poysons that kill by too great coldnesse, induce a dull or heaue sleepe, or drowzinesse, from which you cannot easily rouse or waken them; sometimes they so trouble the braine, that the patients performe many undecent gestures and anticke trickes with their mouthes and eyes, armes and legges, like as such as are franticke; they are troubled with cold sweats, their faces become blackish or yellowish, alwayes ghastly, all their bodies are benumbed, and they dye in a short time unless they be helped; poysons of this kinde are Hemlock, Poppie, Nightshade, Henbane, Mandrage. Dry poysons are usually accompanied by heate with moisture, for although sulphur bee hot and dry, yet hath it moisture, to hold the parts together, as all things which have a consistence have, yet are they called dry, by reason that drynesse is predominant in them: such things make the tongue and throate dry and rough, with unquenchable thirst; the belly is so bound, that so much as the urine cannot have free passage forth; all the members grow squallide by drynesse, the patients cannot sleepe; poysons of this kinde are Lytharge, Cerusse, Lime, Scailes of Brasse, Filings of Lead, prepared antimony. On the contrary, moist poysons induce a perpetuall sleep, a fluxe or scouring, the resolution of all the nerves and joints, so that not so much as the eyes may be faithfully contained in their orbes, but will hang as ready to fall out; the extreme parts, as the hands, feet, nose and ears corrupt & putrefie, at which time they are also troubled with thirst by reason of their strong heat, alwayes the companion of putrefaction, & oft times the author thereof: now when this cometh to passe, death is at hand. Very many deny that there can be any moist poysons found, that is, such as may kill by the efficacy of their humidity, because there are no such things to be found, as may come to the fourth degree of moisture. Yet there is an example that averres the contrary, which was of one, who sleeping on the night, was bitten by a Serpent, as *Gilbertus Anglicus* affirmeth; for dying thereof, when as his servant, desirous to awaken his master out of his sleepe, tooke him by the arme, all the flesh being putrefied, fell off, and presently the bones also fell asunder, being deprived of their flesh, which could not happen, unless by excesse of the venemous humidity which lay hid in the teeth and spittle of the serpent. Also wee have found it noted by *Hippocrates*, that in a rayny, humide, and southerly constitution of the yeare, it happened by the malignant violence of the venenate and putrefying humidity, that the flesh of the armes and legges becomming rotten, fell away by peecemeale, and the bones remained bare; yea also and the bones themselves in some, putrefied and fell away: neither certainly doth the *Lues venerea* kill by any other meanes, than by a fretting and putrefying force of humidity, by whose efficacy the solidity of the bones is dissolved; then much more the flesh may be tainted and consumed by putrefaction.

To these and such poysons which worke by a manifest and elementary faculty, when as they shall be received into the body after what manner soever, you shall forthwith oppose their contraries, and if by chance it be not manifest, what, and of what distinct kind of poyson that is, you must know that such poysons as worke by occult properties, it is not by reason as yet found out how they will affect the body, but onely by experience. Therefore to these you must oppose their like antidotes, which may by their whole substance strengthen the heart and vitall faculty, and withstand the strength of the poyson. But to this our distinction of poysons, working by a manifest and elementary quality, their opinion is contrary, who affirme that the venome of all poysonous beasts are therefore cold, for that such as are bitten or stung with them, are forthwith felt to be colder than a stone. And that serpents for fear of cold, when as winter is at hand, keep themselves in holes and dens under ground, or else as vipers use to doe, lye under stones, under which, you may often finde them stiffe and numbe, and so unapt for motion, that you may easily take them up in your hand. But the coldnesse that is perceived or felt in such as are bitten or stung, is not occasioned by the coldnesse of the poyson, but by the absence of the naturall heate, withdrawing it selfe in the very instant of the stroake, from the surface

Signes of cold poysons.

Signes of dry poysons.

Signes of moist poysons.

A history.

Sec. 3. lib. 3. epid.

The Lues venerea kills by excesse of moisture.

All poysons are not cold.

Why such as
are poysoned
or stung, are
cold.

face into the center of the body, both for the defence of the heart, as the principall part, as also for that there is nothing, which so much dissipates, or so much oppugnes the vitall heat, as poyson (of what kinde soever it be) doth.

CHAP. VI.

How, or by what meanes to shunne, or eschew Poysons.



What such as
feare poysoning
must observe in
their diet.

Tis a matter of much difficulty to avoyd poysons, because such as at this time temper them, are so thoroughly prepared for deceit and mischief, that they will deceive even the most wary and quick-sighted; for they so qualifie their ingrate taste and smell, by the admixture of sweet and well smelling things, that they cannot easily bee perceived even by the skillfull. Therefore such as feare poysoning, ought to take heed of meates cooked with much art, very sweete, salt, soure, or notably endued with any other taste. And when they are oppressed with hunger or thirst, they must not eate nor drinke too greedily, but have a diligent regard to the taste of such things as they eate or drinke; besides, before meat let them take such things as may weaken the strength of the poysons, such as is the fat broth of good nourishing flesh meates; in the morning let them arme themselves with treacle or mithridate, and conserve of roses, or the leaves of rue, a walnut and dry figs; besides, let him presently drinke a little draught of Muskedine or some other good wine; when one suspects hee hath taken any poyson in meat or drinke, let him forbear sleeping. For besides that the force of poyson is oft times so rapid, that it consumes our life in a short space, as fire doth stubble, as also for that it is drawne more inwardly into the secret passages of the body by sleepe. Wherefore in such a case it is better to procure vomit by drinking *Hydracelum* warme, or butter dissolved in warme oyle, or a decoction of line, or fenugreeke seedes, or fat broth, for thus the received poyson is also cast forth therewith, or else the acrimony thereof retunded, and the belly loosed.

Why sleepe is
hurtfull.

Why and how
vomit must be
procured.

When and
wherewith they
shall be purged.

You may see this by daily experience, for caustickes, vesicatories, and the like acrid things being applyed to an anointed part, will not blister nor exulcerate the part. Neither doth the vomit conduce onely in this, that it excludeth the poyson, but it shewes either by the taste, smell, or colour, the kinde of the taken poyson; so that then by using the proper Antidote, it may bee the more easily and speedily resisted, yet notwithstanding if you conceive that the poyson have descended deeper into the Guts, you may with a glyster draw away the rest thereof which adheres to the coats of the Guts. But if the patient cannot vomit, then shall some purging medicine be given him forthwith, and such as are thought more particularly to resist poyson, such as are Agaricke, Aloes, the lesser Centaury, Rubarbe and other things, according to the direction of the learned Physitian. Then shall you administer glysters made with *Cassia*, fatty decoctions, sheeps suet, or butter or Cowes milke, with the mucilages of Line seed, *psilium* seeds, quince seeds, and other such things as are usually given in a Dysentery, or bloody fluxe, that such things may hinder the adhesion of the poyson to the coates of the guts, and by their unctuousnesse retunde the acrimony of the poyson, and mitigate if any thing shall already be ulcerated, and absolutely defend the sound parts from the maligne effects of the poyson. But let this be a perpetuall rule, That the poyson bee speedily drawne backe by the same way it entered into the body; as, if it entered by smelling in at the nostrills, let it bee drawne back by sneezing; if by the mouth into the stomach, let it be excluded by vomit; if by the fundament into the belly, then by glyster; if by the privities into the wombe, then by *metrenchites* or injections made therinto; if by a bite, sting or wound, let revulsion bee made by such things as have a powerfull attractive faculty; for thus we make diversions, that by these we may not onely hinder the poyson from assailing the heart, but also that by this means we may draw it from within outwards. Wherefore strong ligatures cast about the armes, thighes and legges, are good in this case. Also large cupping

The cure of
poysoned
wounds.

cupping glasse applyed with much flame to sundry parts of the body, are good. Also bathes of warme water, with a decoction of such things as resist poyson, as southerne wood, calamine, rue, betony, horehound, penny royall, bayes, *scordium*, smallage, scabious, mints, valerian, and the like, are good in this case. Also sweates are good, being provoked so much as the strength of the patient can endure. But if he be very wealthy, whom we suspect poysoned, it will bee safer to put him into the belly of an ox, horse or mule, and then presently into another as soone as the former is cold, that so the poyson may bee drawne forth by the gentle and vaporious heate of the new killed beast; yet doe none of these things without the advise of a Physician, if it may conveniently be had.

CHAP. VII.

How the corrupt or venomous Ayre may kill a Man.

THE aire is infected and corrupted by the admixture of maligne vapours, either arising from the unburied bodies of such as are slaine in great conflicts, or exhaling out of the earth after earth-quakes, for the aire, long pent up in the cavities and bowells of the earth, and deprived of the freedom and commerce of the open aire, is corrupted, and acquires a maligne quality, which it presently transferreth unto such as meet therewith. Also there is a certaine malignity of the aire which accompanieth thunders, and lightnings, which savoures of a sulphureous virulency, so that whatsoever wilde beastes shall devour the creatures killed therewith, they become madde, and dye immediately; for the fire of lightning hath a farre more rapid, subtle, and greater force than other fires, so that it may rightly be termed a Fire of Fires.

By how many, and what meanes the aire may be infected

How thunders and lightnings may infect the aire.

An argument hereof is, that it melteth the head of a spear, not harming the wood, and silver and gold, not hurting the purse wherein it is contained. Also the aire is infected by fumigations, which presently admitted into the body and bowels by the mouth and nose in respiration, by the skinned and arteries in perspiration, doth easily kill the spirits and humours being first infected, and then within a short space after, the solid substance of the principall parts, & chiefly of the heart being turned into their nature, unlesse the man be first provided for by sneezing, vomiting, sweating, purging by the belly, or some other excretion. For that poyson which is carryed into the body by smell is the most rapid & effectually, by so much as a vapor or exhalation is of more subtle & quicker piercing essence than an humor. Yet notwithstanding, wilt thou say, it is not credible, that any can be kild by any vapor raised by the force of fire, as of a Torch, or a Warming-pan, for that the venenate quality of the thing that is burnt, is dissipated and consumed by the force of the fire, purging and cleaning all things. This reason is falsely faigned to the destruction of the lives of careless people; for sulphureous brands kindled at a cleere fire, doe notwithstanding cast forth a sulphureous vapour. Whether doe not *Lignum aloes* and Juniper, when they are burnt in a flame, smell lesse sweetly?

Whether the vapour that ariseth from a burnt thing may poyson one.

Pope *Clement*, the seventh of that name, the Uncle of our Kings Mother, was poysoned by the fume of a poysonous Torch that was carryed lighted before him, and dyed thereof. *Machiavolus* telleth, that there were two Mountebanks in the market place of *Sienna*, the one of which, but smelling to a poysoned gilly-flower given him by the other, fell downe dead presently.

A history.

A certaine man not long ago, when he had put to his nose, and smelled a little unto pomander, which was secretly poysoned, was presently taken with a *Vertigo*, and his face swelled, and unlesse that hee had gotten speedy helpe by sternutories and other meanes, hee had died shortly after of the same kinde of death that Pope *Clement* did.

The safest preservative against such poysons, is not to smell to them: moreover, some affirme, that there are prepared some poysons of such force, that being anointed but on the saddle, they will kill the rider, & others, that if you but anoint the stir-

ropes therewith, they will send so deadlie poysonous a qualitie into the rider, through his boots, that he shall die therof within a short time after: which things, though they be scarce credible, because such poyson touch not the naked skin, yet have they an example in nature, whereby they may defend themselves. For the *Torpedo* sends a narcoticke, and certaineie deadlie force, into the arme, and so into the bodie of the Fisher, the cords of the net being between them.

CHAP. VIII.

That every kinde of Poyson hath its proper and peculiar Signes and Effects.

AS poysons are distinct in *species*, so each *species* differs in their signes and effects; neither is it possible to find anie one kinde of poyson, which may be accompanied or produce all the signes and effects of all poysons, otherwise Physitians should in vaine have written of the signes and effects of each of them, as also of their proper remedies & antidotes. For what kind of poyson shall that be, which shall cause a burning heat in the stomach, bellie, liver, bladder & kidneies, which shall cause a hicketting, which shall cause the whole body to tremble and shake, which shall take away the voice and speech, which shall cause convulsions, shall weaken the pulsificke facultie, which shall intercept the freedome of breathing, which shall stupefie and cast into a dead sleepe, which shall together, and at once cause a *Vertigo* in the head, dimnesse in the sight, a strangling, or stoppage of the breath, thirst, bleeding, feaver, stoppage of the urine, perpetuall vomiting, rednesse, lividnesse, and palenes of the face, resolution of the powers, and manie other things, all which are caused by all sorts of poyson. Lastly, no bodie will denie, but that hot poysons may kill more speedily than cold, for that they are more speedily actuated by the native heat.

Hot poysons
kill sooner than
cold.

CHAP. IX.

The Effects of Poysons from particular venomous things, and what Prognosticks may thence bee made.



Lib. 2. cap. 27.
The bites of all
wild beasts are
virulent.

Tis the opinion of *Cornelius Celsus*, and almost of all the antients, That the bite of everie beast had some virulencie, but yet some more than othersome. They are most virulent that are inflicted by venomous beasts, as Aspes, Vipers, Water-snakes, and all kindes of Serpents, Basiliskes, Dragons, Toads, Mad dogges, Scorpions, Spiders, Bees, Wasps, and the like. They are lesse maligne, which are of creatures wanting venome, as of Horses, Apes, Cats, Dogges not mad, and manie other things, which though of their owne nature they are without poison, yet in their bites there is something more dolorificke and ill natured, than in common wounds inflicted by other occasions: I beleeve that in their slaver or *sanies*, there is something, I know not how to terme it, contrarie to our nature, which imprints a maligne qualitie in the ulcer, which also you may observe in the tearings or scratchings of such creatures as have sharpe clawes, as Lions and Cats. Moreover manie affirme that they have found by experience, that the bites of men are not altogether without virulencie, especially of such as are red haired and freckled, cheiflie when as they are angred; it is probable that the bites of other persons want this malignitie, seeing that their spittle will cure small ulcerations. Wherefore if there shall happen difficultie of cure in a wound, caused by a mans biting, which is neither red haired nor freckled, neither angrie; this happens not by meanes of the spittle, nor by anie maligne qualitie, but by reason of the contusion, caused by the bluntnesse of the teeth, not cutting, but bruising the part, for being not sharp, they cannot so easily enter the flesh, unlesse by bruising and tearing, after the manner of heave and blun

The bites of a
red haired man
virulent.

stroak


strokes and weapons, wounds being occasioned by such are more hard to bee cured, than such as are made by cutting and sharp weapons. But of the fore-said bitings of venomous creatures, there are few which doe not kill in a short space, and almost in a moment, but principally if the poison be sent into the bodie by a live creature, for in such poison there is much heat; also there is therein a greater tenuity, which serves as vehicles thereto into what place or part soever of the bodie they tend, the which the poisons taken from dead creatures are defective of. Wherefore some of these kill a man in the space of an houre, as the poison of Aspes, Basiliskes and Toads; others not unlesse in two or three daies space, as of water Snakes; a Spider, and Scorpion require more time to kill, yet all of them admitted but in the least quantity, doe in a short space cause great and deadly mutations in the bodie, as if they had breathed in a pestiferous aire, and with the like violence, taint and change into their owne nature all the members and bowels, by which these same members do in the time of perfect health change laudible meats into their nature and substance. The place whereas these poisonous creatures live, & the time, conduce to the perniciousnesse of the poison, for such as live in drie, mountainous and sun-burnt places kill more speedily than such as be in moist and marish grounds; also they are more hurtfull in winter than in summer; and the poison is more deadly which proceeds from hungry, angry and fasting creatures, than that which comes from such as are full and quiet; as also that which proceeds from young things, chiefly when as they are stimulated to venery, is more powerfull than that which comes from old & decrepitate; from females worse than from males; from such as have fed upon other venomous things, rather than from such as have abstained from them, as from snakes which have devoured toads, vipers which have fed upon scorpions, spiders & Caterpillers. Yet the reason of the efficacie of poysons depends from their proper, that is, their subtle or grosse consistence, & the greater or lesse aptnesse of the affected body to suffer. For hot men that have larger & more open veins & arteries, yeeld the poison freer passage to the heart. Therefore those which have more cold & straight vessels, are longer ere they die of the like poison; such as are full, are not so soon harmed as those that are fasting: for meats, besides that by filling the vessels, they give not the poison so free passage, they also strengthen the heart by the multiplication of spirits, so that it more powerfully resists pernicious venome. If the poison worke by an occult and specifick propertie, it causeth the cure and prognostick to be difficult, and then must we have recourse to Antidotes, as these which in their whole substance resist poysons, but principally to treacle, because there enter into the composition thereof medicines which are hot, cold, moist and drie: whence it is, that it retunds and withstands all poisons, chiefely such as consist of a simple nature, such as these which come from venomous creatures, plants and mineralls; and which are not prepared by the detestable art of empoisoners.

Contused
wounds harder
to heale than
such as are cut.

Why treacle
retunds the
force of all simple
poysons.

CHAP. X.

What cure must bee used to the bitings and stingings of venomous beasts.

 Ure must speedily bee used without any delay to the bites and stingings of venomous beasts, which may by all meanes disperse the poyson, and keepe it from entering into the body; for when the principall parts are possessed, it boots nothing to use medicines afterwards. Therefore the Ancients have propounded a double indication, to leade us to the finding out of medicines in such a case, to wit, the evacuation of the virulent and venenate humour, and the change or alteration of the same and the affected body. But seeing evacuation is of two sorts, to wit, universall, which is by the inner parts, and particular, which is by the outward parts. We must begin at the particular, by such topick medicines as are fit to draw out, and retund the venome; for we must not alwaies begin a cure with generall things, as some thinke, especially in externall diseases, as wounds, fractures, dislocations, venomous bites and punctures. Wherefore

A double indication in the cure of venomous bites.

Lotions fit for
venomous bites.

Lib. de theriaca.

Treacle out-
wardly applyed
and inwardly ta-
ken good a-
gainst vne-
mous bites.

The force of E.
cium.

The efficacy of
Cauteries a-
gainst vne-
mous bites.

The force of
Precipitate a-
gainst vne-
mous wounds.

hereto as speedily as you may, you shall apply remedies fit for the bites & punctures of venomous beasts, as for example, the wounds shall bee presently washed with urine, with sea-water, *aqua vita*, or wine, or vinegar wherein old treacle or mustard shall be dissolved. Let such washing be performed very hot, and strongly chafed in, and then leave upon the wound and round about it, linnen ragges, or lint steeped in the same liquor. There be some who thinke it not fit to lay treacle thereto, because, as they say, it drives the poyson in. But the authority of *Galen* convinceth that opinion, for he writeth that if treacle be applyed to this kind of wounds before that the venome shall arrive at the noble parts, it much conduceth. Also reason confutes it, for vipers flesh enters the composition of treacle which attracts the venome by the similitude of substance, as the Load-stone draweth iron, or Amber strawes. Moreover, the other simple medicines which enter this composition, resolve and consume the virulencie and venome, and being inwardly taken, it defendeth the heart and other noble parts, and corroborateth the spirits. Experience teacheth that mithridate firstly given in the stead of treacle worketh the like effect. The medicines that are taken inwardly and applyed outwardly for evacuation, must bee of subtle parts, that they may quickly insinuate themselves into every part to retund the malignity of the poyson, wherefore garlike, onions, leeks, are very good in this case, for that they are vaporous; also *scordium*, rue, *dielamnus*, the lesser Centaury, horehound, rocket, the milkie juice of unripe figs, and the like, are good; there is a kind of wilde buglosse amongst all other plants, which hath a singular force against venomous bites, whence it is termed *Echium* and *viperinum*, and that for two causes; the first is, because in the purple flowers that grow amongst the leaves, there is a resemblance to the head of a viper or adder. Another reason is, because it heales the biting of a viper not onely applyed outwardly, but also helpeth such as are bitten, being drunke in wine, yea, and will not suffer those that have lately drunke thereof to bee bitten at all. Wilde time hath the like effect; though these oft-times agree with the poyson in quality as in heate, yet doe they helpe in discussing and resolving it: yet, as much as wee may, wee must labour to have evacuation and alteration together. It is most convenient, if the part affected will permit, to apply large cupping-glasses with much flame and hornes; also sucking is good, the mouth being first washed in wine wherein some treacle is dissolved, and with oile, lest any thing should adhere thereto, for it will hinder it, if so be the mouth bee no where ulcerated. It is good also to apply horse-leaches; some wish to apply to the wound, the fundaments of hens or turkies that lay egges, for that such are opener behinde, first putting salt upon them that they may gape the wider, shutting their beaks and opening them now & then lest they should be stifled, and ever and anon to substitute others in stead of such as die or are suffocated; for thus it is thought the poyson is drawne forth, and passeth into the bird by the fundament. There bee others which had rather apply to the wound live birds cut asunder in the midst, and so laid to hot, for that they ghesse these resist poyson by a naturall discord. But certainly it is by their heate whereby they doe not onely digest toads, aspes, vipers, scorpions and other venomous things, but also weare asunder and soften sand, stones, and most dry and stony seeds in their gizzards; wherefore we must thinke them very good to draw out the poyson and dissipate it. But nothing is so forcible to disperie and retund the venome, as the impression of cauteries, especially actually, for a hot iron workes more effectually and speedily, and causeth an ulcer which will remaine open a longer time. Wherefore to cause the speedier falling away of the eschar, you shall scarifie it to the quick, and then plentifully anoint the place. For thus the poyson will the sooner passe forth. But this must bee done before the poyson enters far into the body, for otherwise Cauteries will not only do no good, but further torment the patient, and weaken him to no purpose. Let drawing plaisters be laid to the wound & neighbouring parts, made of *Galbanum*, turpentine, blacke pitch, and other gummy and resinous things. After the falling away of the Eschar, *basilicon* shall bee applyed, quickned with a litle Precipitate, for it is very effectually in these cases, for that it draweth forth the virulent *sanies* out of the bottome of the wound, neither doth it suffer the wound to bee closed speedily. To which purpose they put in a piece of of a sponge, or a roote of *Gentian* or *Hermodyll*,

Styll, or some acride medicine, as *egyptiacum* or Precipitate mixed with the powder of Alume, or a caustick beaten to powder. But you must alwaies observe this, that with your ointments you must alwaies mixe some Treacle or Mithridate, or the juice of *hypericon*, or the like, which have power to attract and disperse the poyson, and cleanse the ulcer; yet if too vehement heat shall cause such paine as is likely to bring a gangrene by the dissipation of the spirits, then neglecting the cure of the proper disease for a time, wee must labour to correct the symptome. But in this case you must observe this rule, that you let no bloud, give no purging medicine, nor glyster, nor vomit, nor use no bath, nor other thing that may procure sweat, untill three daies be past after the bite or sting. In the meane space, let the patient shun all manner of labour, but chiefly venery, lest by causing an agitation of the humours, the poyson get sooner to the heart. Therefore then it is time to use universall evacuations, when as you shall suspect that the poyson is diffused over the veines and whole inner part of the bodie besides. Before you shall give nothing, unlesse medicines of Treacle or Mithridate and the like things, which have a faculty to resist poyson, and strengthen the whole body by their benigne and vitall vapour, although their substance goe no further than the stomack. Thus pills when they are swallowed, though they goe no further than the stomacke, yet doe they draw matter out of the joints and head; and strong glysters, though they passe no further than the guts, yet by their quality diffused further with the vapour, they draw from the most distant parts; yet you must give an Antidote, not onely more powerfull than the poyson in quality, but also greater in quantitie, that so it may the more easily overcome and expell the poyson. Wherefore you must give it twice in a day, and continue it so long untill you shall know that the strength of the poyson is weakned and overcome by the remission and decay of the maligne symptomes. Yet in the meane while, you must not neglect the distemper caused in the part by the poyson, but must rather correct it by the application of remedies contrary to the distemper, as by cold things, if great heat afflict the affected part and whole bodie; by hot things on the contrary, if it seeme as cold as a stone, which oft-times happens. And let thus much suffice for the generall cure of poysons: now will we come to their particular cure.

When hot things are not convenient for poysoned wounds.

Antidotes must be given in great quantities.

CHAP. XI.

Why dogges sooner become mad than other creatures, and what bee the signes thereof.



Dogges become mad sooner than other creatures, because naturally they enjoy that temper and condition of humours which hath an easie inclination to that kinde of disease, and as it were a certaine disposition, because they feed upon carrion and corrupt, putride and stinking things, and lap water of the like condition; besides the trouble and vexation of losing their masters, makes them to runne every way, painfully searching and smelling to every thing, and neglecting their meat. A heaving of the bloud ensues upon this paines, and by this heate it is turned into a melancholy, whence they become madde. But yet dogges doe not alway become mad by meanes of heat, but also by occasion of cold, that is, by contrary causes, for they fall into this disease not onely in the dog-daies, but also in the depth of winter. For dogges abound with melancholike humours, to wit, cold and drie. But such humours as in the summer through excesse of heate, so in the depth of winter by constipation and the suppression of fuliginous excrements, they easilie turn into melancholie. Hence followes a very burning and continuall feaver, which causeth or bringeth with it a madnesse. Adde hereto, that in the depth of winter the heate which is contained within is redoubled, and in like manner as the scorching heate in summer, it breeds and turnes the humours into melancholie. Also dogges become madde by contagion, as such as are bitten by another madde dogge. A mad dog hath sparkling and fierie eies, with a fixed looke, cruell and a squint, hee carries his head heavily, hanging downe towards the ground, and somewhat on one side,

Dogs naturally subject to madnesse.

Dogs become mad, not onely in the heat of summer, but also in the depth of winter.

Why melancholike persons hurt themselves.

hee gapes, and thrusts forth his tongue, which is livide and blackish; and being short breathed, casts forth much filth at his nose, and much foaming matter at his mouth; in his gate, as if he suspected and feared all things, he keepeth no one or certain path, but runs one while to this side, another while to that, and stumbling like one that is drunke, he oft-times falleth downe on the ground; he violently assailes whatsoever he meets withall, whether it bee man, tree, wall, dog, or any thing else; other dogs shun him, and presently sent him a farre off. But if another unawares chance to fall foule on him, he yeelds himselfe to his mercy, fawnes upon him, and privily labours to get from him, though hee be the stronger & greater. Hee is unmindfull of eating and drinking, he barks not, yet he bites all he meets without any difference, not sparing his master, as who at this time hee knowes not from a stranger or enemie. For it is the property of melancholie to disturbe the understanding, so that such persons as are melancholike, doe not onely rage against, and use violence to their friends and parents, but also upon themselves. But when as he sees water, he trembles and shakes, and his haire stands up on end.

CHAP. XII.

By what signes we may know a man is bitten of a mad dog.

The bite of a mad dog not very painefull at the first.



Signes of the bite of a mad dogge.

Signes by which you may gather that the noble parts are tainted.

Why men becoming mad be like dogs.

It is not so easie at the first to know a man that is bitten with a mad dogge; and principally for this reason, because the wound made by his teeth causeth no more pain than other wounds usually do; contrary to the wounds made by the sting or bite of other poysonous creatures, as those which presently after they are inflicted, cause sharpe paine, great heat, swelling and abundance of other maligne accidents, according to the nature of the poyson; but the malignity of the bite of a mad dogge appeares not before that the venome shall invade the noble parts. Yet when you are suspicious of such a wound, you may acquire a certaine knowledge and experience thereof by putting a piece of bread into the quittance that comes from the wound. For if a hungry dog neglect, yea more fly from it, and dare not so much as smell thereto, it is thought to bee a certaine signe that the wound was inflicted by a madde dogge. Others adde, That if any give this piece of bread to hens, that they will die the same day they have eaten it; yet this latter, I making experiment thereof, failed, for devouring this virulent bread, they became not a jot the worse. Wherefore I think the former signe to be the more certaine, for dogs have a wonderfull and sure smelling faculty, whereby they easilie sent and perceive the malignitie of the like creature. But when as the raging virulencie hath invaded the noble parts, then the patients, becoming silent and sorrowfull, thinke of many things, and at the beginning make a noise with their teeth; they make no answer to the purpose, they are more testie than ordinarie, and in their sleepes they are troubled with dreames, and strange phantasies, and fearfull visions, and lastly, they become affraid of the water. But after that the poison hath fixed it selfe into the substance of the noble parts, then all their faculties are disturbed, all the light of their memorie, senses, reason and judgement is extinguished. Wherefore becoming starke mad, they know not such as stand by them, nor their friends, nor themselves, falling upon such as they meet withall, & themselves with their teeth, & nailes & feet. Often twitchings like convulsions do suddenly rise in their limbs; I judge them occasioned by extraordinary driness, which hath as it were wholly drunk up all the humiditie of the nervous parts; there is a great driness of the mouth with intolerable thirst, yet without any desire of drink, because the mind being troubled, they become unmindful & negligent of such things as concerne them, and are needful for them; the eyes look fierie & red, & all the face is of the same colour; they still think of dogs, and seem to see them, yea and desire to bark and bite just after the manner of dogs; I conjecture that the virulent humour hath changed all the humours & the whole body into the like nature, so that they think themselves also dogs; whence their voice becomes hoarse by much endeavouring to barke, having forgot all decency,

die, like impudent dogs, to the great horror of the beholders. For their voice growes hoarse by reason of the great drynesse of the *aspera arteria*; they shun the light, as that which is enemy to melancholy, wherewith the whole substance of the braine is replenished; on the contrary, they desire darkenesse, as that which is like and friendly to them. But they are affraid of the water (though good to mitigate their great distemper of heat and driness) and they fly from looking-glasses, because they imagine they see dogs in them, whereof they are much affraide, by reason whereof they shun the water and all polite and cleare bodies which may supply the use of a looking-glasse; so that they throw themselves on the ground, as if they would hide themselves therein, lest they should be bitten againe: for they affirme that he which is bitten by a mad dog, alwaies hath a dog in his minde, and so remaines fixed in that sad cogitation. Wherefore thinking that he sees him in the water, he trembles for feare, and therefore shuns the water. Others write that the body by madnesse becometh wondrous dry, wherefore they hate the water, as that which is contrary thereto, being absolutely the moistest element; and so they say that this is the reason of their fearing the water. *Ruffus* writes that madnesse is a kinde of melancholie, and that feare is the proper symptome thereof, according to *Hippocrates*; wherefore this or that kind of melancholie begets a feare of these or these things, but chiefly of bright things, such as looking-glasses and water, by reason that melancholie persons seeke darkenesse and solitarinesse, by reason of the black corruption of the humour wherewith they abound. They fall into cold sweats, a fomie, stinking and greenish matter flowes from the ulcer, by reason of the heat of the antecedent cause and ulcerated part. The urine most commonly appeares watrish, by reason that the strainers, as it were, of the kidnies, are straitned by the heat and driness of the venome. Yet sometimes also it appears more thick and black, as when nature powerfully using the expulsive facultie, attempts to drive forth by urine the melancholy humour, the seat of the venome. Also sometimes it is wholly supprest, being either incrassated by hot drynesse, or else the mind being carried other waies, and forgetfull of its owne duty, untill at length the patients, vexed by the cruelty of so many symptomes, and overcome by the bitternesse of pain, die frantick, by reason that medicines have not been speedily and firly applyed. For few of those who have used remedies in time, have perished of this disease.

Why they shun the light

Why they are affraid of the water.

Aphor. 25. sect. 6.

The bite of a mad dog taken in hand in time, is for the most part curable.

CHAP. XIII.

Prognosticks.

WE cannot so easily shun the danger we are incident to by mad dogs, as that of other beasts, by reason he is a domestick creature, and housed under the same rooffe with us. The virulency that resides in his foame or slaver is hot and dry, maligne, venenate and contagious, so that it causeth a distemper like it selfe, in the body whereto it shall apply it selfe, and spread it selfe over the whole body by the arteries; for it doth not onely hurt when as it is taken in by a bite or puncture, but even applyed to the skin, unlesse it be forthwith washed away with salt water or urine. Neither doth this venome hurt equally or at all times alike, for it harms more or lesse, according to the inclination of the aire to heat or cold, the depth of the wound, the strength of the patients body, and the ill humours thereof, and their disposition to putrefaction, the freedome and largenesse of the passages. Now maligne symptomes happen sooner or later, as in some about the fortieth day, in others about fixe moneths, and in others a yeare after. There be some who thereupon are troubled with the falling sicknesse, and at length grow mad: such as fall into a feare of the water, never recover. Yet *Avicen* thinks their case is not desperate, if as yet they can know their face in a glasse; for hence you may gather, that all the animall faculties are not yet overthrowne, but that they stand in need of strong purgations, as we shall shew hereafter. *Aëtius* tels that there was a certaine Philosopher, who taken with this disease and a feare of water, when as hee descended with a great courage unto the bath, and in the water beholding the shape of the dog that bit him, hee made a stand, but ashamed thereof, he forthwith cryed out,

The venome of a mad dog applyed outwardly only, may cause madnesse.

Whether the Hydrophobia or feare of water, be incurable.

A history.

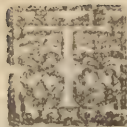
Quid

Quid canicum Balneo? (i) What hath a dog to doe with a Bath? which words being uttered, he threw himselfe forcibly into the Bath, and fearelessly dranke of the water thereof, and so was freed from his disease together with his erroneous opinion. It is a deadly signe to tumble themselves on the ground, to have a hoarse voice, for that is an argument that the weazon is become rough by reason of too excessive drynesse. Finally, the principall parts being possessed, there is no recovery or life to be hoped for. Men may fall mad, though they bee not bit by a mad dog. For as the humours are often inflamed of themselves, and cause a *Cancer* or Leprosie, so do they also madnesse in melancholic persons. The bites of vipers and other venomous creatures cause not like symptomes to these that come by the biting of a mad dog, because they die before such can come forth or shew themselves. Great wounds made by mad dogs are not equally so dangerous as little, for from the former, great plenty of venomous matter flowes out, but in the latter it is almost all kept in.

CHAP. XIII.

What care must be used to such as are bitten by a mad dog.

A history.



The force of
Sorrell.

The force of
Docks.

A history.


His case also requires speedy remedies, for such things are in vaine which come long after the hurt. The Lawyer *Baldus* experienced this to his great harme; for being by chance lightly bit in the lip by a little dog wherewith he was delighted, not knowing that he was mad, & neglecting the wound, by reason of the smallnesse thereof, after some foure moneths space, he died mad, having then in vaine assayed all maner of medicines. Wherefore observing these things both for evacuation, as also for alteration, which we have formerly mentioned in the generall cure of wounds inflicted by the bite or sting of venomous creatures, and by all the meanes there specified, we must draw forth the venome; and if the wound be large, then suffer it to bleed long and much, for so some part of the poyson will be exhausted; if it be not great, it shall be enlarged by scarification, or an occult cauterie, neither shall it be healed or closed up at the soonest, till forty daies be passed. Sorrell beaten and applied to the wound, and the decoction thereof taken inwardly, is very effectuall in this case, as *Aëtius* affirms. To the same purpose you may with good successe make a lotion and friction with mustard dissolved in urine or vinegar, leaving upon the wound a double cloth moistned in the same decoction: lastly, all acride, biting and very attractive medicines are convenient in this case. Wherefore some apply Rocket boyled and beaten with butter and salt; others take the flowre of *Oribas*, and temper it with hony, salt and vinegar, and apply it hot. Horse-dung boyled in sharpe vinegar, or brimstone beaten to powder and tempered with ones spittle, is good. Also black pitch melted with some salt, and a little *Euphorbium* mixed therewith and so applied, is good. Some write, that the haire of the dogge whose bite caused the madnesse, applied by themselves, by their sympathie or similitude of substance draw the venome from within outwards; for so a Scorpion beaten and applied to the place whereas it stung, by drawing out the poyson that it sent in, restores the patient to health, both these by often experience are affirmed to have certaine event. Others chaw unground wheat, and lay it upon the wound, others roast beanes under hot embers, then huske them and cleave them, and so apply them. Also the wound may be wholesomely washed and fomented with a decoction of Docks, and then the herb beaten may be applyed thereto; also the patient may drinke the decoction; and by this one remedy *Aëtius* affirms that he hath recovered divers; for thus it moves urine plentifully, which is thought much to conduce to the cure of this disease. There be some who apply the leaves of betony and nettles beaten with common salt; others make a medicine to the same purpose and after the same manner of an Onion, the leaves of Rue and salt. Yet the rest are exceeded by Treacle dissolved in *aqua vita* or strong wine, and rubbed hard upon the part, so that the bloud may follow, laying upon the wound when you have wiped it, clothes dipped in the same medicine, then presently apply garlike or onions beaten with com-

mon

mon salt and turpentine : by this onely remedy I freed one of the daughters of *Ma-* A history.
damoiselle de Gron from the symptomes of madnesse, and healed the wound, when as
a mad dog had bit her grievously in the calfe of the right leg. Also it is good present-
ly to eate garlick with bread, and then to drinke after it a draught of good wine, for
garlicke by its spirituouse heate will defend the noble parts from poyson. There bee
some who wish to eate the roasted liver of the dog that hurt them, or else the liver of
a goat, of which remedies as yet I have had no experience. Others prescribe a dram
of the seeds of *Agnus castus* to be drunke with wine and butter. Others the powder
of river-crabs, burnt and drunke in wine. Or, *R. rad. gentiana ʒi. asiacoram flouatili-*
um in fumo combust. & in pollinem redact. ʒiii. terra sigill. ʒss. misce. give ʒi of this same
powder in the decoction of river-crabs, & let them drinke thereof oft at sundry times.
Many have cast themselves into the sea, neither have they thence had any helpe a-
gainst madnesse, as *Ferrand Pozet* the Cardinall testifieth in his booke of poysons ; Leaping into
the sea no more
caine to me. yet
gainst madnesse.
wherefore you must not relie upon that remedie, but rather you must have recourse
to such things as are set downe in the books of Physicians, and approved by certaine
and manifold experience. But seeing that no poyson can kill, unlesse it be taken or ad-
mitted into the body, we must not fear any harme by sprinkling our bodies with the
sanies of a mad dogge, viper, toad, or any other such like venomous creature, if so bee
that it be presently wiped or washed cleane away.

CHAP. XV.

*What cure must be used to such as feare the water, but yet are able to
know themselves in a glasse.*

uch as have not their animal faculty as yet overcome by the malignity of
the raging venome, must have strong purgations given them. Where- The force of
Antimonie a-
gainst madnesse.
fore, if in any case Antimonic bee usefull, then is it in this, as that
which causeth sweats, looseth the belly, and procures vomiting. For it
is a part of extreme and dangerous madnesse to hope to overcome the
cruel malignity of this poyson already admitted into the bowels, by gentle purging
medicines. Assuredly, such and so great danger is never overcome without danger.
Bathes also conduce, which may disperse and draw forth the poyson by causing
sweats. Also many and frequent treacle potions are good, to retund the venome, and
strengthen the bowels ; also it will be fitting to give them water and all other liquid
things, which they so much abhorre, in a cup with a cover. Alwaies let such as are
poisoned, or bitten or stung, by a mad dog or other venomous beast, keep themselves
in some warme and light place, that the poyson which by coldnesse is forced in, may
be the readilier drawne out by the means of heat, and the spirits bee recreated by the
brightnesse of the aire, and therefore move from the center to the circumference of
the body, and let the roome be perfumed with sweet things. To eat very hot and salt
things presently at the beginning, as onions, leeks, all spiced meats, and strong wine
not allayed, seems not to be besides reason ; because such things by their spirituous
heat hinder the diffusion of the poyson over the body, and strengthen the filled en-
trailes. There be some also that would have them to feed upon grosse and viscous
meats, which by obstructing the vessels, may hinder the passage of the poyson to the
heart and other parts, and by the same reason it will be better to fill themselves with
meate to satietie, than otherwise, because the malignity of humours is encreased by
hunger, than which, nothing can be more harmfull to venomous wounds. Yet with-
in a short while after, as within five or sixe dayes, they must returne to a mediocritie,
and use all things temperate, boiled meats rather than roasted, and that in a decoction
of opening things, so to move urine. Lastly, they must keep such a diet as melanco-
like persons ought to do ; neither shall they let blood, lest so the poyson should bee
further drawne into the veines ; but it is good that the patients body be soluble from
the very first. Let their drinke be wine indifferently allayed with water, *oxymel sim-
plex*, or the syrupe of the juice of Citron with boiled water ; or else this following
Julep

Why sleepe is
hurtfull to such
as are bitten by
a mad dog, and
all such as are
poysoned.

Julep. R. succilimonum, & malorum citri, an. ʒ℥. fac. gran. acid. ʒ℥ii. aqua acetosa, min. & ros. an. ʒ℥i. aq. ferri. coct. quantum sufficit, fiat Julep, ut artis est. Sleep is to be avoided untill the force of the poyson is abated, for by sleep the humours flow back into the bowells. All things that resist poyson must bee given any way whatsoever, as lemons, oranges, *angelica* rootes, gentian, tormentill, burnet, vervine, *carduus benedictus*, borage, buglosse, and the like. Let all things that are afterwards set before the patient be meats of good juice, such as are veale, kid, mutton, partridge, pullets, capons, and the like.

CHAP. XVI.

Of the biting of a Viper or Adder, and the symptomes and cure thereof.

The bites of vi-
pers show virtu-
lent.



The symptoms.

He remedies that were formerly mentioned against the bitings of madde dogges, the same may bee used against all venemous bites and stings, yet neverthelesse each poyson hath his peculiar antidote. Vipers or Adders (as we vulgarly terme them) have in their gummes, or the spaces betwene their teeth, little bladders filled with a virulent *sanies*, which is pressed out into the part that they bite with their teeth. There forthwith ariseth a pricking paine, the part at the first is much swollen, and then the whole body, unlesse it be hindred: grosse and bloody filth sweats out of the wound, little blisters rise round about it, as if it were burnt, the wound gnawes, and as it were feeds upon the flesh, great inflammation possesseth the liver and the gummes, and the whole body becomes very dry, becomming of a yellowish or pale colour, with thirst unquenchable; the bellie is griped by fits, a cholericke vomiting molesteth them, the stomacke is troubled with a hicketting, the patients are taken with often swoonings, with cold sweate, the forerunner of death, unlesse you provide by fit medicines for the noble parts, before the poyson shall invade them. *Mathiolus* tells that he saw a countrie-man, who, as he was mowing a meadow, by chance cut an Adder in two with his sithe, which when he thought it was dead, he took the one halfe whereon the head remained, without any feare in his hand, but the enraged creature, turning about her head, cruelly bit him by one of his fingers, which finger as men usually doe (especially when as they thinke of no such thing) hee put into his mouth, and sucked out the blood and poyson, and presently fell downe dead.

A history.

A history.

When as *Charles* the ninth was at *Montpelier*, I went into the shop of one *Farges* an Apothecary, who then made a solemne dispensation of Treacle, where not satisfying my selfe with the looking upon the vipers which were there in a glasse, ready for the composition, I thought to take one of them in my hands, but whilest that I too curiously and securely handled her teeth which were in her upper jaw, covered with a skinne, as it were a case to keepe the poyson in, the beast caught hold of the very end of my fore-finger, and bit me in the space which is betwene the naile and the flesh, whence presently there arose great pain, both by reason of the part endued with most exquisite sense, as also by the malignity of the poyson: forthwith I exceeding straitly bound my finger above the wound, that so I might presse forth the blood and poyson, lest they should diffuse themselves further over the body. I dissolved old treacle in *aqua vite*, wherein I dipped and moistened cotton, and so put it to the wound, and within a few dayes I thoroughly recovered by this onely medicine. You may use in stead of Treacle, Mithridate and sundry other things, which by reason of their heat are powerfull drawers, as a squill roasted in hot embers, garlicke and leeks beaten and applyed, barley floure tempered with vinegar, hony, and goats dung, and so applyed like a pultis. Some thinke it sufficient forthwith to wash and foment the wound with vinegar, salt, and a little hony. *Galen* writes that the poyson inflicted by the bite of a viper, may bee drawne forth by applying to the wound the head of a viper, but other some apply the whole viper beaten to mash.

Remedies for
the bite of a
viper.

Lib. de thiazis

CHAP. XVII.

Of the Serpent called Hæmorrhous.

THE Serpent *Hæmorrhous* is so called, because by his biting hee causeth blood to droppe out of all the passages of the wounded bodie; hee is of a small bodie, of the bignesse of a viper, with eies burning with a certaine fierie brightnesse, and a most beautifull skinne. The backe of him (as *A. vici* writes) is spotted with manie blacke and white spots, his necke little and his taile verie small: the part which he bites, forthwith growes blackish, by reason of the extinction of the native heat, which is extinguished by such poison which is contrarie thereto in its whole substance. Then followes a paine of the stomacke and heart, these parts being touched with the pestiferous qualitie of the poison. These paines are seconded by vomiting, the orifice of the ventricle being relaxed by a *Diarrhea*, the retentive facultie of all the parts of the bellie being weakened, and the veines which are spread through the guts, not being able to retaine the blood contained in them. For the blood is seen to flow out, as in streams, from the nose, mouth, eares, fundament, privities, corners of the eies, rootes of the naile, and gums, which putrefie, the teeth falling out of them. Moreover there happens a difficultie of breathing, and stoppage of the urine, with a deadlie convulsion.

The *Hæmorrhous* why so called.

Wonderfull bleedings.

The cure is forthwith to scarifie, and burne the bitten part, or else to cut it quite off, if that it may be done without danger of life, and then to use powerfullie drawing Antidotes.

The figure of the serpent Hæmorrhous.



CHAP. XVIII.

Of the Serpent called Seps.

THE Serpent *Seps* is so called, because it causeth the part which it bites, forthwith to putrefie, by reason of the cruell malignitie of its poyson. It is not much unlike the *Hæmorrhous*, but that it curls or twines up the taile in divers circles. *Pausanias* writes that this serpent is of an ash-colour, a broad head, small necke, bigge bellie, writhen taile, and as he goes, hee runs aside like a crabbe. But his skin is variegated and spotted with severall colours, like to Tapistrie. By the crueltie of his causticke and putrefying venome, hee burnes the part which he hath bit, with most bitter paine; he causeth the shedding of the haire, and as *Aëtius* addeth, the wound at the first casteth forth manifest blood, but within a little while after, stinking filth. The putrefyed affected parts waxe white, and the bodie all over becomes of the colour of that scurfe, which is termed *Alphos*, so that by the wickednesse of this putrefactive poison, not onely the spirits are resolved, but also the whole bodie consumed, as by fire, a pestilent carbuncle, and other putride tumours, arising from a hot and humide or suffocating constitution of the aire. Now for the remedies, they must be such as are formerly prescribed against the bitings of a viper.

Thereason of the name, and description of the *Seps*.

The symptoms.

The

The Figure of the Serpent Seps.



CHAP. XIX.

Of the Basiliske or Cockatrice.

The efficacy of
of the poyson
of the Basilisk.



Lib. de theriac.

Why the Bas-
liske is thought
to kill by his
onely sight.

Plin. lib. 8.
cap. 31.

The Catablepas.

Nothing in na-
ture without its
equall.

Symptomes.

Cure.

He Basiliske far exceeds all kinds of Serpents in the curstnes of its poy-
son. Therefore it is affirmed by *Nicander*, that into what place soever
he comes, other venomous creatures do forthwith flie thence, for that
none of them can so much as endure his hissing; for he is thought to kill
all things even with this, & not with his biting and touch only; besides,
if any of them hasten to get anie meate or drinke, and perceive that the Basiliske is
not farre from thence, he flies back, and neglects the getting of nourishment necessa-
rie for life. *Galen* writes, that the Basilisk is a yellowish serpent, with a sharpe head,
and three risings distinguished with white spots, and rising up in forme of a crowne,
by reason whereof hee is stiled the King of Serpents. Certainly the violence of his
poyson in killing men is so great, that he is therefore thought to kill men, and other
creatures by his sight onely. *Solinus* affirms, that the body of a dead Basiliske hath
wondrous faculties. Wherefore the inhabitants of *Pergamum*, in ancient times, gave
a mightie price for one, to hang upon the joistes of the temple of *Apollo*, so to drive
away the Spiders and Birds, lest they should there weave their webs, or the other
build their nests in that sacred place. Verily no ravenous creature will touch their
carkasse; but if constrained by hunger they doe touch it, then they forthwith fall
downe dead in the same place: and this happens not onely by eating their body, but
also by devouring the bodies of such beasts as are killed by their bitings. They kill
the trees and shrubs by which they passe, not onely by their touch, but even with
their breath. Amongst the western *Aethiopians* is the fontaine *Nigris*, neer which
there is a serpent called *Catablepas*, small in bodie, and slow, having a great head,
which it scarce can carrie, but that it lies alwaies upon the ground, otherwise it
would kill abundance of people, for it forthwith kills all that see the eyes thereof,
the Basiliske hath the same force; he is bred in the province of *Cyrene*, of the length
of some twelve fingers, with a white spot in his head, resembling a crowne; he cha-
seth away all serpents with his hisse: Weasels are the destruction of such monsters:
thus it pleased nature, that nothing should be without its equall; they assaile them in
their denes, being easily knowne by the barrenesse or consumption of the soile.
These kill them also by their sent, and they die, and the fight of nature is ended: thus
nature to the magnanimous Lion, lest there should be nothing which he might fear,
hath opposed the weake creature the Cocke, by whose crowing onely he is terrefi-
ed and put to flight. *Erastistratus* writes, that a golden yellowesse affects the bitten
part of such as are hurt by a Basiliske, but a blacknesse and tumour possesseth the rest
of the body, all the flesh of the muscles within a while after falling away piece-
meale. An antidote against this must be made of a dramme of *Castoreum* dissolved
in

in wine and drunken, or else in the juice of poppie. But *Actius* thinkes it superfluous to write remedies against the Basiliske, when as the sight and hearing onely kills such as either see or heare her.

The figure of a Basiliske.



CHAP. XX.

Of the Salamander.

THe Salamander kills not onely such as it bites by making a venemous impression, but it also infects the fruits and herbs over which it creeps, with a spittle or grosse moisture which sweats out of all the bodie, to the great danger of the health and life of such as eat these things at unawares: wherefore it need not seeme strange, which is received by some late writers, that some families have all died by drinking water out of pits, whereinto a Salamander by accident was fallen. For if it shall creepe upon a tree, it infects all the fruit with the qualities of cold and moist poyson, wherein it yeelds not to Aconite.

The malignity
of a Salamander.

The temper of
her.

Actius writes that such as are infected with the poyson of a Salamander, certaine parts of their bodie grow livide, so that they fall away often, being putrefyed. At the first there appeare white spots over the body, then red, afterwards blacke with putrefaction, and the falling away of the haire. The cure is, to procure vomit, to loose the belly with a glyster, and to give them Treacle and Mithridate in porions.

Symptomes.

The cure.

Avicen prescribes the same things against this kinde of poyson as against opium, by reason of the cold nature of them both; the proper antidote is turpentine, styrax, nettle seeds, and cypresse leaves. *Dioscorides* writes that the Salamander is a kind of lizard dull, variegated, and which is falsely reputed not to be burnt by fire. But *Pliny* saith she is so cold, that she extinguisheth the fire by her touch onely, being laied upon hot coales. On the contrary, *Matthiolus* saith that cast into a great flame, they are quickly consumed. It is easie out of *Actius* to reconcile these disagreeing opinions; This creature, saith hee, passeth through a burning flame, and is not hurt, the flame dividing it selfe and giving her way, but if shee continue any time in the fire, the cold humour being consumed in her, she is burnt. Now the Salamander is black, variegated, with yellow spots, starre-fashion.

How a Salamander may be
said to live in
the fire.

The figure of a Salamander.

CHAP. XXI.

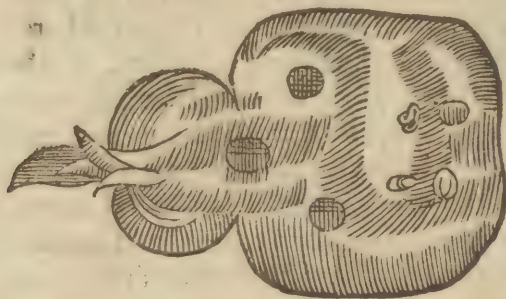
Of the Torpedo.

The craft of the
Torpedo.

His stupefying
force.



He *Torpedo* hath his name from the effect, by reason that by his touch and power the members become torpid & numb; in muddy shoars it lives upon fish, which she catcheth by craft. For lying in the mud, she so stupefies those that are nigh her, that she easily preyes upon them; she hath the same power over men, for she sends a numnesse not only into the arm of the fisherman, but also over all his body, although his fishers pole be betweene them.

The effigies of a Torpedo.

CHAP. XXII.

Of the Bitings of Aspes.

Symptomes.



THE wound which is made by an Aspe is very small, as if a needle were thrust into the part, and without any swelling. These symptomes follow upon her bite, suddaine darknesse clouds their eyes, much agitation in all their bodies, but gentle notwithstanding; a moderate paine of the stomacke troubles them, their foreheads are continually troubled with convulsive twitchings, their cheeks tremble, and their eye-lids fall gently to rest and sleep; the blood which flows from the wound is little, but blacke; death no longer deferred than the third part of a day, will take them away by convulsions, unlessse you make resistance with fitting remedies. The male Asp makes two wounds, the female four as it also happens in the bitings of vipers. Now for that the poyson of Asps congeale the blood in the veines and arteries, therefore you must use against it such things as

Cure.

are hot & subtle of parts, as mithridate or treacle dissolved in *aqua vita*, and the same powred into the wound; the patient must be warmed by bathes, frictions, walking, and the like. When as the hurt part becommeth purple, black or greene, it is a signe that the native heat is extinct and suffocated by the malignity of the venome. Therefore then it is best to amputate the member, if the partie bee able to endure it, and there be nothing which may hinder. *Vigo* writes, that he saw a Mountebank at Florence, who, that he might sell the more of his Antidotes, and at the better rate, let an Aspe to bite him by the finger, but he died thereof some foure houres after. To the same purpose you may reade *Mathiolus*, whereas hee writes that those Impostors or Mountebanks to cozen the better, and deceive the people, use to hunt and take vipers and aspes long after the spring, that is, then whenas they have cast forth their most deadly poyson; then they feed them with meats formerly unusuall to them, so that by long keeping and care, at the length they bring it to passe, that they put off a great part of their venemous nature; neither being thus satisfied, they make them oftentimes to bite upon pieces of flesh, that so they may cast forth into them the venome which is contained in the membrane betweene their teeth and gums. Lastly, they force them to bite, licke and swallow downe an astringent medicine, which they compose and carry about for the same purpose, that so they may obstruct the passages by which the venome used to flow out, for thus at length their bites will be harmelesse, or without great danger. This therefore is their art, that so they may sell their counterfeited treacle to the people at a high rate, as that which is a most safe remedy against all poisonous bites. *Christopher Andrew* in his book called *oecoiatria*, writes, that the Ilands of Spaine are every-where full and stored with serpents, alpes, and all sorts of venemous beasts, against whose bites they never observed or found any benefit in treacle. But the efficacie of the following Antidote is so certaine and excellent, and approved by so manifold experience, that in the confidence thereof, they will not bee affraid to let themselves bee bitten by an Aspe. Now this medicine is composed of the leaves of Mullet, Avenes & red stock Gillyflowers in like quantity, which they boile in sharpe vinegar and the urine of a found man, and therewith toment the wounded part. Yet if he have not taken nor used any thing of a good while after the wound, it will be better and more certaine, if the patient drinke three ounces of this decoction fasting two houres before meate.

A history.


By what means
Aspes may bee
made lesse hurt-
full.
*Gal. lib. de Ther.
ad pisonem.*

Against the
bites of what
serpents treacle
doth no good.

A certain reme-
dy against the
bites of Aspes.

CHAP. XXIII.

Of the biting of a Snake.

 Have thought good in a true history to deliver the virulent malignity of the bite of a snake, and the remedies thereof. When as King *Charles* the ninth was at Moulins, *Monsieur Le Feure*, the Kings Physician, and I were called to cure the Cooke of the Lady of Castelpers. Who gathering hoppes in a hedge to make a salad, was bit on the hand by a snake that there lay hid, hee putting his hand to his mouth, sucked the wound to ease the paine by sucking forth the venome. But his tongue forthwith swelled so bigge, that he could not speak his mind: besides his whole arme, even to his shoulder, was in like sort much swelled, his paine was so vehement, that it made him swoone twice in my presence, his face was wan and livid like to a dead body, and though I despaired of his recovery, yet not suffering him to bee quite forsaken, I washed his mouth with treacle dissolved in white wine, and gave him some thereof to drinke, adding thereto some *aqua vita*. I opened his swolne arme with many and deepe scarifications, especially in the place where he was hurt, I suffered the bloud which was wholly serous and sanious, to flow more plentifully, I washed the wounds with treacle and mithridate dissolved in *aqua vita*, and then I put him exceeding warme in bed, procuring sweat, and making him to lie awake, lest sleep should draw the poyson inwards to the entrailles. I by these meanes so farre prevailed, that on the day after hee was freed from all his maligne symptomes. Therefore I judged it onely remained

A historie.

The cure.

for a perfect cure, that the wound should be long kept open and washed with treacle, neither was I deceived, for within a few dayes he was perfectly recovered.

CHAP. XXIV.

Of the bitings of Toads.

The bites of
toads show
harmfull.



Though Toads want teeth, yet with their hard & rough gums they so straitly presse or pinch the part which they shall take hold on, that they will force their poison therinto, and so over the whole body by the pores of the pressed part. Moreover, they cast forth their venome by urine, spittle and vomit upon herbes, but chiefly upon Strawberries, the which they are reported greatly to affect. Hence many suddenly and ignorantly catch their deaths.

A history.

The symptoms
occasioned by
the poyson of
toads.

I heard from a man of very good credit, that there were two merchants not farre from the Citie *Tholouse*, who whilest dinner was providing, walked into the garden that belonged to the Inne, where they gathered some sage leaves, and unwashed as they were, put them into their wine. They had not as yet dined, when being taken with a sudden *Vertigo*, the whole Inne seemed to run round, then losing their sight, they fell into a sowne, intermixed now and then with convulsions. But they stammered with their lippes and tongues becomming blacke; a froward and horrid look with continuall vomiting, and a cold sweat, the forerunner of death, which presently seized upon them, their bodies becomming exceedingly much swolne. But the Justices of the place suspecting that they were poysoned, made the Inne-keeper and the Guests to be apprehended, being examined, they all constantly & with one voice answered, that the dead parties ate of the same meat and drinke which the rest did, but onely that they put sage into their wine. A Physician was asked the question whether sage might be poysoned; he answered, it might: but to come to the purpose, that it must appeare whether any venomous creature had poysoned the plant with her spittle or venomous *sanies*. This which was lightly pronounced, and only by conjecture, was by the eye found to bee true. For at the roote thereof there was found a hole in the ground full of Toads, who got out by putting in of warme water, made it credible that the plant was poysoned by their spittle and urine, whereby you may understand how unwisely they doe, who devoure herbes and fruits newly gathered without washing. Also we must take heed lest falling asleep in the fields, wee lye not neere the holes which toads or other venomous beasts of the like nature have made their habitation. For thence a venomous or deadly aire may be drawn into the lungs. For the same cause wee must abstaine from eating of frogs in the moneth of May, because then they engender with toads. Oxen in feeding sometimes lick up small toads together with the grasse, which presently will breed their great harme, for thereupon the oxen swell so big, that they often burst withall. Neither is the venome of toads deadly only being taken inwardly, but even sprinkled upon the skin, unless they forthwith wipe the place, & wash it with urine, water & salt. Such as are poisoned by a toad turn yellow, swell over all their bodies, are taken with an Asthmaticke difficultie of breathing, a *Vertigo*, convulsion, sowning, and lastly by death it selfe. These so horrid symptoms are judged inherent in the poyson of toads, not only by reason of the elementary qualities therof, coldness & moisture, which are chiefly predominant therein; but much rather by the occult property which is apt to putrefie the humors of that body whereto it shall happen. Therefore it wil be convenient to procure vomit, especially if the poison be taken by the mouth, to give glysters, & to weaken the strength of the poison by hot and attenuating Antidotes, as treacle & mithridate dissolved in good wine; but in conclusion to digest it by bathes, stoves, and much and great exercise. *Rondeletius* in his book *de Piscibus*, affirms the same things of the cursed venome of toads, as we have formerly delivered: yet that they seldome bite, but that they cast forth either their urine, the which they gather in a great quantity in a large bladder, or else their venomous spittle or breath against such as they meete withall, or assaile; besides, the herbes which are tainted by their poisonous breath, but much

May frogs.

The cure.

more

more such as are sprinkled with their spittle or urine, are sufficient to kill such as eat them. The Antidotes are juice of betonic, plantaine, mugwort, as also the bloud of Tortoises made with flower into pills, and forthwith dissolved in wine, and drunken. *Antidotes against the poyson of toads.* *Pliny* writes that the hearts and spleens of toads resist poison. The vulgar opinion is false, who thinke that the toad-stone is found in their heads, which is good against poyson.

CHAP. XXV.

Of the stinging of a Scorpion.



Scorpion is a small creature with a round bodie in forme of an egge, with many feet, and a long taile consisting of many joints, the last whereof is thicker and a little longer than the rest, at the very end thereof is a sting, in some two, hollow and replete with cold poyson, the which by the sting it casts into the obvious body; it hath five legs on each side forked with strong claws, not unlike to a Crab or Lobster, but the two foremost are bigger than the rest; they are of a blackish or footie colour, they goe aside, aside; and oft-times fasten themselves with their mouthes and feet so fast to men, that they can scarce be plucked therehence. There be some who have wings like the wings of Locusts, wasting the corn & all green things with their biting and burning. Such are unknown in France. These flee over divers Countries like winged Ants. This is likely to be true by that which *Mathiolus* writes, that the husbandmen in Castile in Spain, in digging the earth oft-times finde a swarm of Scorpions, which betake themselves thither against winter. *Pliny* writes, that Scorpions laid waste a certaine part of *Aethiopia*, by chasing away the inhabitants. The Ancients made divers kinds of Scorpions, according to their varietie or difference of colours, some being yellow, others browne, redish, ash-coloured, greene, whitish, blacke, duskie; some have wings, and some are without. They are more or lesse deadly according to the countries they inhabite. In Tuscanie and Scythia they are absolutely deadly, but at Trent and in the Iland Pharos their stinging is harmlesse. The place stung by a Scorpion presently begins to be inflamed, it waxeth red, growes hard and swells, and the patient is againe pained, hee is one while hot, another while cold, labour presently wearies him, and his paine is somewhiles more and somewhiles lesse, he sweats and shakes as if he had an Ague, his haire stands upright, palnesse discolours his members, and hee feels a paine, as if he were pricked with needles over all his skin, wind flieth out backwards, he strives to vomit and goe to stoole, but doth nothing, he is molested with a continuall feaver and fawning, which at length proves deadly, unlesse it be remedied. *Discorides* writes, that a Scorpion beaten and laid to the place where he stung, is a remedy thereto, as also eaten roasted to the same purpose. It is an usuall, but certaine remedy to anoint the stung place with the oyl of Scorpions. There be some who drop into the wound the milkie juice of figs, others apply thereto Calamint beaten, others some use barley meale mixed with a decoction of Rue. Snailles beaten together with their shels, and laid thereon presently asswage pain. *Sulphur vivum* mixed with turpentine, and applyed plaster-wise, is good; as also the leaves of Rue beaten & laid thereto. In like sort also the herbe *Scorpioides*, which thence tooke its name, is convenient, as also a bryony root boiled and mixed with a little sulphur and old oile. *Discorides* affirms Agarick in powder or taken in wine to be an Antidote against poysons, verily it is exceeding good against the stingings or bitings of serpents. Yet the continuall use of a bath stands in stead of all these, as also sweat and drinking wine somewhat alaid. Now Scorpions may bee chased away by a fumigation of *Sulphur* and *Galbanum*; also oile of Scorpions dropped into their holes, hinders their comming forth. Juice of radish doth the same. For they will never touch one that is besmeared with the juice of radish or garlike, yea verily, they will not dare to come neare him.

The description
of a Scorpion.
His taile.

Winged Scorpions.

Symptomes.

*Lib. 3. cap. 10. &
lib. 6. cap. 44.*

Lib. 3. cap. 1.

Scorpions chased
away with
the juice of gar-
lick or Ra-
dishes.

CHAP. XXVI.

Of the stinging of Bees, Wasps, &c.

Bees, Wasps, Hornets and such like, cause great paine in the skin wounded by their stinging, by reason of the curstnesse of the venome which they send into the body by the wound, yet are they seldome deadly, but yet if they set upon a man by multitudes, they may come to kill him. For thus they have sometimes been the death of horses. Wherefore because such as are stung by these, by reason of the cruelty of pain, may think they are wounded by a more virulent and deadly creature, I thinke it not amisse to set downe what signes follow upon their stings. Great paine presently ariseth, which continueth untill the sting left in the part is taken forth, the part becomes red and swolne, and there riseth a push or little blister. The cure is, forthwith to sucke the wound very hard, and thereby to draw forth the stings, which if they cannot thus be gotten out, the place, if nothing hinder, is to be cut, or else temper ashes with leuen or oile, and so apply them: the part also may be very conveniently put into hot water, and there fomented for an houres space, and at length washed in sea-water. Cresses beaten and applied, assuage the paine and discusse the humour causing the tumour. Oxe dung macerated in oile and vinegar, and applyed hot, doth the same. There are some who apply to the part the same creatures beaten, as we formerly said of Scorpions; beans chewed and laid to the part assuage paine. Vinegar, hony and salt applied exceeding hot, are good, if besides, you dip a cloth therein, and lay it upon the place; *sulphur vivum* tempered with spittle hath the same effect. The milkie juice of unripe figs incorporated with hony, is judged very effectuell, but it is much the better, mixed with treacle. Wasps will not sting nor bite such as anoint their bodies with the juice of mallowes mixed with oile. They may bee quickly chased away with the fume of brimstone and such like things. A waspe is said, if shee find a viper dead, to dip her sting in the others poyson, and thence men learned to empoison the heads of their arrowes. The rough and hairy wormes, which are commonly called Bear-wormes, especially those which breed about a Pine tree, cause great itching, rednesse & swelling in the part which they bite, touch or grate upon very hard. A remedy hereof is onions beaten with vinegar, and the rest of the things formerly mentioned.

The symptoms.

The cure.

The bites of
Bear-wormes.

CHAP. XXVII.

Of the bite of a Spider.

Differences of
Spiders.

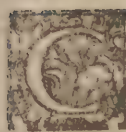
Spiders weave webs with various art, yet in these they alwaies make a lurking hole, so to lye in waite to catch the intrapped flyes, and so to prey upon them. There are many sorts of Spiders, one is termed *Rhagium*, round and like a blacke berry, whence it taketh the name; it hath a very small mouth under the midst of the belly, and most short feet, as if they were imperfect, her bite is as painefull as the sting of a Scorpion. Another is called *Lupus* or the Wolfe-spider, because shee doth not onely lye in waite to catch flyes, but also bees and wasps, and all such things as may flee into her webbe. The third is named *Myrmecion*, it is larger than an Ant, but headed like one, the bodie thereof is blacke, and hath white spots or streakes running towards the backe. The fourth kind may bee called *Vesparium*, in other things resembling a Waspe, but that it wants the wings; of redish colour, and living onely on herbes. The Ancients have thought their biting to bee venomous. Now their poyson is therefore thought to bee cold, because the symptoms thence arising are winde in the belly, refrigerations of the extreme part of the body, numnesse in the bitten part, with sense of cold and shaking. The wound must forthwith be washed with very hot vinegar; then must you lay thereto onions

an

and such like things beaten, then procure sweat by art, as by bathes and stoves, yet nothing is more effectuall than treacle and mithridate.

CHAP. XXVIII.

Of Cantharides and Buprestes.



Antharides shine as it were with a golden colour, acceptable to the eye, by reason of the commixture of a blewish or greenish colour therewith, yet their smell is ungratefull. They are hot and dry in the fourth degree, and so causticke, corrosive and venomous, not onely by reason of their cau-

The description
of *Cantharides*.

sick quality, but because of a secret antipathy which they naturally have against the urenary parts; which effects they produce not onely if they bee taken by the mouth into the body, but even applyed outwardly to raise blisters. Such as have taken them inwardly, have the tast of pitch or some thing like *cedria*, or the rosen of Cedars, in their mouthes, it is likely that this tast proceeds from the humours dissolved by the

Enemies to the
Bladder.

Symptomes.

putredinous heat in the stomach, guts & liver, and the vapours that therehence arise; for taken inwardly, they gnaw, exulcerate and burne all parts from the mouth even to the belly, whence ensueth a bloody fluxe, excrements flowing out, which resemble the washings of new killed flesh. Then followes a burning feaver, *vertigo*, madness, restlesnesse, the braine being disturbed by the plenty of vapours lifted up from the corroded and burnt parts and humours, which therefore when as they appeare, you may know the affect is incurable. In the parts appointed for the receiving and conveyance of the urine they cause a burning inflammation, excoriation, strong and continuall erection of the yard, whence ensues a bloody and painefull strangury, instead of which there oft-times happens or succeeds an Ischary or stoppage of the water, whence a gangrene and mortification of the part, and so in conclusion of the whole bodie besides. When as *Cantharides* are taken inwardly, the remedie is vomiting, drinking of Cowes milke to correct the heat and drynesse, good also to mitigate the ulcers and stay the dysentery; it is good also to inject it into the guts by glyster.

In stead thereof fallade oile, or oile of sweet almonds is convenient to retunde the acrimonie of the poyson fastned to the sides of the stomach. The rest and whole cure of this poyson you may learne by the following history. A certain whore, the better to enjoy the company of a young Abbot who loved her, entertained him with a banquet, and sprinkled divers of their cates with the powder of *Cantharides*, to incite him the more to venery. The next day, when as the Abbot cast forth pure blood at his fundament and yard which stood very stiffe, hee called some Physicians, who presently by the forementioned symptomes, which were all very apparent in him, understood that he had *Cantharides* given him: wherefore they purged him upwards with vomits, and downwards by glysters made with French barley, Rice,

A history.

a decoction of mallowes, seeds of line and foenugreek, oyle of lillies, goats suet: then presently after they gave him a little treacle with a good quantity of conserve of violets, which might draw the poyson outwards, they gave him milke to drinke, and caused him to use injections into the urenary passage and guts made of refrigerating things, as the juice of lettuce, purslaine, cucumbers, gourds, melons; of tough and viscid things, that so they might sticke the more easily and long to the ulcerated parts, as the mucilages of *psilium*, mallowes, quince-seeds, syrupe of water-lillies, poppies and violets, fresh butter, and oile of sweet almonds, and they made him drinke onely barley water, or the common ptisan; they let him feede on veale, kid, and porke boyled with lettuce, purslaine, barley and violet leaves, the which by their humidity might relaxe the belly, and by their toughnesse lenifie the roughnesse or asperitie; they applyed also refrigerating things to the loines, share and *perineum* to assuage the heate of the urine. At length they put him into a warme bath, and to conclude, they left nothing unattempted to draw forth or weaken the poyson. But all their endeavours were in vaine, for the Abbot dyed, not being destitute of remedies conveniently prescribed, but overcome by the contumaci-

The cure.

ous

A history.

ous malignity of the poyson. The Physicians pains had far better successe in a certain Gentlewoman against this kinde of affect, her whole face was deformed with red, fierie and filthy pustles, so that all shunned her company as if shee had beene troubled with a Leprosie, and were ready to forbid her the society of men; shee came to Paris, and calling *Hollerius* and *Grealmus* Physicians, mee and *Caballus* being Surgeons, shee made a grievous complaint, and besought us earnestly for some remedy against so great a deformity of her face; having diligently considered her case, we pronounced her free from a Leprosie; but we judged it fit to apply to her whole face

Cantharides applied to the head, ulcerate the bladder.

a vesicatorie of *Cantharides*, three or foure houres after the application whereof, the medicine being come to worke its effect, her bladder began to burne exceedingly, and the necke of her wombe to swell, with gripings, continuall vomiting, making of water and scowring, a troublesome agitation of the body and members, a burning and absolutely fiery feaver. I forthwith called the Physicians, it was decreed that she should drink wine plentifully, and that it should bee injected by the fundament into the guts, and by the urenary passage into the bladder and the neck of the womb, and that she should keep her selfe, untill the paine were mitigated, in a warme bath made of the decoction of Line-seeds, the roots and leaves of mallowes, marsh-mallowes, violets, henbane, purslaine and lettuce; and her loynes and genitals should be anointed with *argumentum rosarum & populeon* stirred and incorporated with oxycrate. By these meanes, all the symptomes were mitigated. Her face in the interim rose all in a blister, and much purulent matter came out thereof, and so the deformity, where-with shee was formerly troubled, vanished away for ever, so that within a while after shee was married, and had many children, and is yet living in perfect health.

A remedy against Leprous pustles.

The reason of the name.

Buprestes also are of the kinde of *Cantharides*, being like unto them in shape and faculty. If an Oxe or Sheepe or any other creature shall in feeding devoure one of them, hee will presently swell up like a Tunne, whence also they take their name: if a man take them inwardly, hee shall endure the like symptomes as in taking *Cantharides*, and over and besides both his stomacke and his whole belly shall be wonderfully puffed up, as if he had a Dropsie. It is probable that this inflation like a tympany happenneth by humours diffused and resolved into vapours by the fiery acrimony of the venome: They are to bee cured after the same manner as such as have drunke *Cantharides*. Lastly, as in all other poysons which are taken into the body, so also here, if the poyson taken by the mouth bee thought as yet to bee in the stomacke, you must then procure vomit. If it bee gotten into the guts, then must it be drawn away by glysters; if diffused over all the body, then must you make use of such things as may drive the poyson forth from the center to the circumference, such as are bathes and stoves.

CHAP. XXIX.

Of Horse-Leaches.

What horse-leaches most virulent.



Orse-Leaches are also venomous, especially such as live in muddy stinking ditches, for these are lesse hurtfull which reside in clear & pure waters. Wherefore, before they are to bee used in cases of Physick, they must be kept for some dayes space in cleane water, that so they may purge themselves; otherwise they may chance to leave ulcers hard to cure in the places whereto they shall be applyed, and the rather, if they bee violently plucked off, because they by that meanes leave their teeth fastned in the part. Now hee which by chance hath swallowed a Horse-leach, must bee asked in what part hee feelth her, that is, the sense of her sucking. For if shee sticke in the top of the Throate or Gullet, or in the midst thereof, the part shall bee often washed with mustard dissolved in vinegar. If shee bee neare the orifice of the ventricle, it is fit that the patient by little and little swallow downe oyle with a little vinegar. But if shee fasten to the stomacke, or the bottome of the ventricle, the patient by the plucking of the part shall perceive a certaine sense of sucking, the patient

Divers remedies according to the diversity of the parts.

ent will spit bloud, and will for feare become melancholicke. To force her thence, hee shall drinke warme water with oyle; but if shee cannot so bee loosed, then shall you mixe Aloes therewith, or some thing endued with the like bitternesse, for shee will by that meanes leave her hold, and so bee cast forth by vomit. You may perceiue this by such as are applyed to the skinne, on the externall parts, for by the aspersiō of bitter things, whether they bee full or empty, they will forsake their hold. Then shall the patient take astringent things, which may stoppe the bloud flowing forth of the bitten part, such is conserve of Roses, with *terra sigillata*, bole armenicke, and other more astringent things, if need so require. For if they shall adhere to some greater branch of some veine or artery, it will bee more difficult to stop the flowing bloud.

But for that not the earth onely, but the sea also produceth venemous creatures, wee will in like sort treat of them, as wee have already done of the other, beginning with the Lampron.

CHAP. XXX.

Of the Lampron.

THE Lampron, called in Latine *Murana*, is a sea fish something in shape resembling a Lamprey, but shee is bigger and thicker, and hath a larger mouth, with teeth long, sharpe and bending inwards, she is of a duskie colour, distinguished with whitish spots, and of some two cubits length; the Ancients had them in great esteem, because they yeeld good nourishment, and may be kept long alive, in pooles or ponds, and so taken as the owners please to serve their table, as it is sufficiently knowne by the historie of the Roman *Crassus*. Shee by her biting induceth the same symptomes as the viper, and it may bee helped by the same meanes. Verily the Lampron hath such familiarity with the Viper, that leaving her naturall element, the sea, she leapeth a shoare, and seeketh out the Viper in her den to joyne with her in copulation, as it is written by *Ælianus* and *Nicander*.

The description
of the Lampron

The naturall
friendship of
the Lampron
and Viper.

CHAP. XXXI.

Of the Draco-marinus or sea-Dragon.

THE sea-Dragon called by the French *Viva*, for his vivacity (and by the English a Viver, or as some say a Qua viver) because being taken in fishing and drawne out of the sea, shee is said long to survive. Her pricks are poysonous, but chiefly those that are at the edges of her gills. Which is the reason that Cookes cut off their heads before they serve them up to the table; and at Roven the fishermen lay them not upon their stales to sell before they have cut off their heads. The wounded part of such as are hurt, paines them much, with inflammation, a feaver, fowning, gangrene and deadly mortification, unlesse it be quickly withstood. Not very long agoe the wife of *Monsieur Fromaget*, Secretary of the requests, was wounded with a prick of this fish in her middle finger, there followed a swelling and rednesse of the part, without much paine; but perceiuing the swelling to encrease, being made more wary by the mischance of her neighbour the wife of *Monsieur Bargelonne* Lievtenant particulier in the Chastelet of Paris, who died not long before by the like accident being neglected, sent for mee; I understanding the cause of her disease, laid to her pained finger and her whole hand, besides a pultis made of a great Onion roasted under the coales, leaven and a little treacle. The next day I wished her to dip her whole hand into warme water, so to draw forth the poyson, then I divided the skin about it with much scarification, but onely superficially; to the gashes I applyed Leaches, which by sucking drawing a

Symptomes.

A history.

suffici-

Cure.

sufficient quantity of bloud, I put thereto treacle dissolved in *aqua vita*. The next day the swelling was asswaged, and the paine eased, and within a few daies shee was perfectly well. *Dioscorides* writes that this fish divided in the midst and applyed to the wound, will cure it.

CHAP. XXXII.

Of the Pastinaca marina, or Sting-Ray, which some call the Pierce-claw.

The symptoms

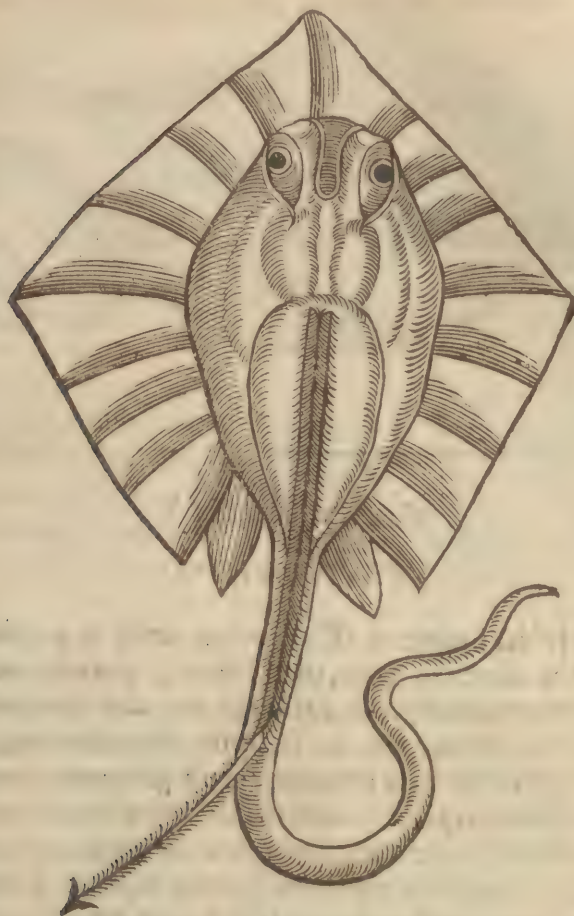


Such as are stung by a Sting-Ray (as *Aetius* hath written) the place of the wound doth manifestly appeare; there ensues thereon lasting paine and the numnesse of the whole body. And seeing that it hath a sharpe and firme sting, whereby the nerves by the deepeesse of the stroake may be wounded, it so happens that some die forthwith, their whole bodies suffering convulsions. Moreover it wil kil even the very trees into whose roots it is fastened. Yet *Pliny* affirms that it is good against the paine of the teeth, if the gums bee scarified therewith, yea, and it being made into powder with white hellebore, or of it selfe, will cause teeth to fall out without any pain, or any violence offered to them. This fish is good meat, the head and taile excepted; some of them have two stings, othersome but one; these stings are sharpe like a Saw with the teeth turned towards their heads. *Oppianus* writes, that their stings are more poysonous than the Persians arrowes, for the force of the poyson remaineth, the fish being dead, which will kill not onely living creatures, but plants also. Fishermen, when they catch this fish, presently spoile him of his sting, lest they should bee hurt therewith. But if by chance they bee hurt therewith, then take they forth his Liver and lay it to the wound; furthermore the fish being burnt and made into powder, is the true Antidote of his wound. The Sting-Ray lives in muddy places neare the shoare, upon the fishes that hee hunteth and catcheth with his sting, having the teeth thereof turned towards his head for the same purpose. Hee is not unlike a Ray, and I have here given you his figure.

Lib. 9 cap. 48.

The virulency
of her sting.

The figure of a Sting-Ray.



CHAP. XXXIII.

Of the *Lepus marinus*, or Sea-hare.

LINNY calls the Sea-hare, a masse or deformed peece of flesh. *Galen* saith that it is like a *Snaile* taken forth of the shell. It is exceeding poysonous in the judgement of the Antients; wherefore it is not amisse to set downe the description of it, lest wee might eate it at unawares, too earnestly view it, or smell thereto, as also that we may use it against the poyson thereof; it is an inhabitant not only of the Sea, but also of Lakes of Sea-water, especially such as are muddy; it is of the same colour as the hair of the land-hare is, it hath a hole in the head, out of which hee putteth a certaine peece of flesh, and pluckes it backe againe when as he is seene. *Paulus, Aëtius, Pliny, Galen* and *Nican-* The description of the Sea-hare.
der, are of one opinion, and agree in this, that if a woman big with child do too earnestly look upon one, she will vomit & presently after abort. They which have drunk this poyson, saith *Dioscorides*, are troubled with paine in the belly, and their urine is stopped. If they doe make water, then is it bloody; they run downe with stinking sweat, which smells of fish; a cholericke vomiting sometimes mixed with blood ensues thereon. The earnest beholding of a Sea-hare will cause abortion.

Aëtius writes that all their bodies turne yellow, their faces swell, and their feete, but chiefly their genitall member, which is the cause they cannot make water freely. *Galen* writes that it is the property of the Sea-hare to exulcerate the Lungs. Their Antidote is Asses milke, Muskedine, or honyed Wine continually drunken, or a decoction of the roots and leaves of Mallowes. It is good for the falling away of the haire. I have here given you the figure thereof out of *Rondeletius* his book of fishes.

The

The figure of a Sea-Hare.



CHAP. XXXIV.

Of the Poyson of Cats.

A Cats haire
most subject to
choake.



Not onely the braine of a Cat, being eaten, is poysonous and deadly to man, but also their haire, their breath, yea and their very presence to some prove deadly. For although any haire devoured unawares, may be enough to choake one, by stopping the instruments of respiration, yet the haire of cat by a certaine occult propertie, are judged most dangerous in this case: besides also, their breath is infected with a certain hurtfull malignitie.

The breath of a
Cat most hurt-
full to the lungs

For *Mathiolus* saith that he knew some, who being so delighted with Cats, that they could never go to bed without them, have by so often drawing in the aire with their breath, fallen into a consumption of the Lungs, which occasioned their death.

A history.

Moreover, it is manifest that the very sight of their eies is hurtfull, which appears by this, that some but seeing or hearing them, presently fall downe in a swoone; yet I would not judge that to happen by the malicious virulency of the Cat, but also by the peculiar nature of the party, and a quality generated with him, and sent from heaven. When as, saith *Mathiolus*, a certaine Germaine in winter time, came with us into a stove to supper, where as were divers of our acquaintance; a certaine woman, knowing this mans nature, lest that hee should see her kitling which shee kept, and so should goe away in a chafe, she shut her up in a cupboard in the same chamber.

A wonderfull
antipathy be-
twene a man
and a Cat.

But for all that hee did not see her, neither heard her cry; yet within a little space, when hee had drawne in the aire, infected with the breath of the Cat, that quality of temperament, contrary, or enemy to Cats, being provoked, he began to sweat, to looke pale, and to cry out (all of us admiring it) *Here lies a Cat in some corner or other*; neither could he be quiet untill the Cat was taken away. But such as have eaten the braines of a Cat are taken with often Vertigoes, and now and then become foolish and mad: they are helped by procuring vomit, and taking the Antidote against this poyson, that is, halfe a Scruple of Muske, dissolved and drunke in wine. There bee some who prescribe the confection *Diamoschum* to be taken every morning, foure

The Antidote
against the
braines of a Cat.

Cats dangerous
for children.

houres before meat. By this you may gather that it is not so fabulous that the common sort report, that Cats will kill or harme children; for lying to their mouthes with the weight of their whole bodies, they hinder the passage forth of the fuliginous vapours, and the motion of the Chest, and infect and stiffe the spirits of tender infants, by the pestiferous aire and exhalation which they send forth.

CHAP. XXXV.

Of certaine poysonous Plants.

Having described the poysons that come from living creatures, I come to speake of such as are from Plants, beginning with the Sardonian herb, which is also called *Apium risus*: this is a kinde of *Ranunculus* or Crow-foote: (and, as it is thought, the round leaved water Crow-foote, called Marsh-crow-foote or Speare-wort) it taketh away the understanding of such as cate thereof, and by a certaine distention of the nerves, contracts the cheekes, so that it makes them looke as if they laughed; from this affect came that proverbiall speech of the Sardonian laughter, taken in evill part. His Bezoar, as one may terme it, is the juice of Balme.

The juice, fruit, and substance of *Napellus*, taken inwardly, killeth a man the same day, or at the furthest in three dayes: yea and such as escape the deadly force thereof by the speedy and convenient use of Antidotes, fall into a hecticke feaver, or consumption, or become subject to the falling sicknesse, as *Avicen* affirmeth. And hence it is that barbarous people poyson their arrowes therewith. For the lippes are forthwith inflamed, and the tongue so swells, that by reason thereof it cannot bee contained in the mouth, but hangs out with great horroure; their eyes are enflamed, and stand forth of their head, and they are troubled with a *Vertigo* and sowning, they become so weake that they cannot stirre their legges, they are swollen and puffed in their bodies, the violence of the poyson is so great. The Antidote thereof is a certaine little creature like a * Moufe, which is bred, and lives on the root of *Napellus*, being dried and drunke in powder, to the weight of two drammes. In want hereof, you may use the seed of Raddish or Turneps to drinke, and anoint the body also with the oile of Scorpions.

Napellus, or Monks-hood.

* Our Author is deceived by the *Arabians*, who (it may bee) mistook the greeke word, *μῦς*, and instead thereof read, *μύ*; for a Flye, a Moufe; for there is no Moufe to be found, but whole swarmes of Flies, which feede thereon: you may finde the description of an Antidote made with them in *Labels Stipp. Advers. pag. 302.*

Dorycinum and *Solanum Manicum*, or deadly night-shade, are not much different in their mortall symptomes or effects. *Dorycinum* being drunke, resembleth milk in tast, it causeth continuall hicketting, it troubleth the tongue with the weight of the humour, it causeth blood to bee cast forth of the mouth, and certaine mucous matter out of the belly, like that which commeth away in the bloody fluxe. A remedy hereto are all shell Fishes, as well crude as roasted, also sea-lobsters and crabbes, and the broth or liquor wherein they are boyled, being drunke. Now the root of *Solanum manicum* drunke in the weight of one dram in wine, causeth vaine and not unpleasing imaginations, but double this quantity causeth a distraction or alienation of the minde for three dayes; but foure times so much, kills. The remedies are the same as these prescribed against *Dorycinum*.

Dorycinum and *Solanum manicum*, or deadly Night-shade.

Henbane drunken, or otherwise taken inwardly by the mouth, causeth an alienation of the minde like drunkenness; this also is accompanied with an agitation of the body, and exolution of the spirits like sowning. But amongst others, this is a notable symptome, that the patients so dote, that they thinke themselves to be whipped: whence their voice becomes so various, that sometimes they bray like an asse or mule, neigh like a horse, as *Avicen* writes. The Antidote is pistick nuts eaten in great plenty, treacle also and mithridate dissolved in sacke, also wormewood, rue and milke.

Henbane.

The Antidote.

Of Mushromes, some are deadly and hurtfull of their owne kinde and nature, as those, which broken, presently become of divers colours, and forthwith putrefie: (such as *Avicen* saith those are which be found of a grayish or blewish colour) others though not hurtfull in qualitie, yet eaten in greater measure than is fitting, become deadly; for seeing by nature they are very cold and moist, and consequently abound with no small viscosity, as the excrementitious phlegme of the earth or trees whereon they grow, they suffocate and extinguish the heat of the body, as overcome by their quantity, and strangle as if one were hanged, and lastly kill. Verily I cannot chuse, but pitying Gourmondizers, who though they know that Mushromes are

Mushromes.

Their Antidote

the seminary and gate of death, yet doe they with a great deale of doo, most greedily devoure them; I say, pitying them, I will shew them, and teach them the art, how they may feed upon this so much desired dish, without the endangering of their health. Know therefore that Mushromes may be eaten without danger, if that they be first boyled with wild peares: but if you have no wilde peares, you may supply that defect with others which are the most harsh, either newly gathered, or dried in the sun. The leaves, as also the bark of the same Tree, are good, especially of the wild; for peares are their Antidote: yet *Conciliator* gives another, to wit, Garlick eaten crude, whereto in like sort vinegar may bee fitly added, so to cut and attenuate the tough, viscous and grosse humors, heaped up, and in danger to strangle one by the too plentiful eating of Mushromes, as it is delivered by *Galen*.

In 5. epidemi.

Colchicum or
meadow-saffron

Ephemerum, which some call *Colchicum* or *Bulbus sylvestris*, that is, meadow saffron, being taken inwardly, causeth an itching over all the bodie, no otherwise than those that are netled, or rubbed with the juice of a Squill. Inwardly they feele gnawings, their stomacke is troubled with a great heavinesse, and the disease encreasing, there are streakes of blood mixed with the excrements. The Antidote thereof is

The Antidote.

womans milke, Asses or Cowes milk drunken warme, and in a large quantity.

Mandrage.

Mandrage taken in great quantity, either the root or fruit causeth great sleepeinesse, sadnesse, resolution and languishing of the body, so that after many scritchings and gripings, the patient falls asleep in the same posture as hee was in, just as if hee were in a Lethargie. Wherefore in times past they gave Mandrage to such as were to bee dismembred. The apples, when as they are ripe, and their seeds taken forth, may be safely eaten, for being green and with their seeds in them, are deadly. For there ariseth an intolerable heate, which burnes the whole surface of the bodie, the tongue and mouth waxe dry, by reason whereof they gape continually, so to take in the cold aire; in which case unlesse they be presently helped, they die with convulsions. But they may be easily helped, if they shall presently drinke such things as are convenient therefore. Amongst which, in *Conciliators* opinion, excell radish seeds eaten with salt and bread for the space of three dayes. Sneezing shall be procured, if the former remedy do not quickly refresh them, and a decoction of Coriander or Penny-royall in faire water shall be given them to drinke warme.

The cure.

Opium.

Why not used
in poysonings.

The ungratefull taste of the juice of blacke poppy, which is termed *Opium*, as also of Mandrage, easily hinders them from being put into meate or drinke, but that they may be discerned, and chiefly for that neither of them can kill, unlesse they be taken in a good quantity. But because there is danger, lest they bee given in greater quantity than is fitting by the ignorance of Physitians, or Apothecaries, you may by these signes finde the error.

The symptoms.

There ensues heavie sleepe, with a vehement itching, so that the patient oftentimes is forced thereby to cast off his dull sleepe wherein hee lay, yet keepes his eye-lids shut, being unable to open them. But by this agitation there flowes out sweat, which smels of *Opium*, the bodie waxeth pale, the lippes burne, the Jaw-bone is relaxed, they breath little and seldome. When as their eyes waxe livid, unlesse they bee drawne aside, and that they are depressed in their orbe, we must know that death is at hand. The remedy against this is two drammes of the poudre of *Castoreum* given in wine.

Hemlocke.

The symptoms.

Hemlocke drunken, causeth *Vertigo's*, troubleth the minde, so that the patients may bee taken for mad men; it darkeneth the sight, causeth hicketting, and benums the extreme parts, & lastly strangles with convulsions, by supressing or stopping the breath of the Arterie. Wherefore at the first, as in other poysons, you must endeavour to expell it by vomit; then inject glysters, to expell that is got into the guts; then use wine without mixture, which is very powerfull in this case. *Peter Aponensis* thinks the Bezoar or Antidote thereof to bee a potion of two drams of Treacle, with a decoction of *Diſſamnis* or Gentian in wine. He which further desires to enform himselfe of the effects of Hemlock, let him read *Mathiolus* his commentary upon *Dioscorides*, where as he treats of the same subject.

In lib. 6. diosc.

Aconitum.

Aconitum called so of *Aconis* a towne of the *Periendines*, where as it plentifully growes. According to *Mathiolus*, it kills Wolves, Foxes, Dogges, Cats, Swine, Panthers,

thers, Leopards, and all wilde beasts, mixed with flesh, and so devoured by them, but it kills mice by onely smelling thereto. Scorpions, if touched by the roote of Aconite, grow numme and torpid, and so die thereof; arrowes or darts dipped therein, make uncurable wounds. Those who have drunke Aconite, their tongue forthwith waxeth sweet with a certaine astringtion, which wi hin a while after turneth to bitterness; it causeth a *Vertigo*, and shedding of teares, and a heavinesse or straitnesse of the chest and parts about the heart; it makes them breake wind downwards, and makes all the body to tremble. *Pliny* attributes so great celerity and violence to this poyson, that if the genitalls of female creatures bee touched therewith, it will kill them the same day; there is no presenter remedy than speedy vomiting after the poyson is taken. But *Conciliator* thinks *Ar. stolocheia* to be the Antidote thereof. Yet some have made it usefull for man by experimenting it against the stinging of Scorpions, being given warme in wine. For it is of such a nature, that it killeth the party unlesse it finde something in him to kill; for then it strives therewith as if it had found an adversary. But this fight is onely when as it finds poyson in the body; and this is inarvellous, that both the poisons being of their own nature deadly, should dye together, that man may by that meanes live. There are divers sorts thereof, one whereof hath a flower like an helmer, as if it were armed to mans destruction; but the other here delineated hath leaves like to sowes-bread, or a cucumber, and a root like the taile of a scorpion.

Lib. 27. cap. 21.

Aconite good against the poyson of Scorpions.

The differences

The figure of a certaine kind of Aconite.



Trees also are not without poyson, as the Yew and Walnut tree may witnesse: Cartell, if they feede on the leaves of Yew, are killed therewith. * But men, if they sleepe under it or sit under the shadow thereof, are hurt therewith, and oft-times dye thereof. But if they eat it, they are raken with a bloody fluxe, and a coldnesse over all their bodyes, and a kinde of strangling or stoppage of their breath. All which things the Yew causeth not so much by an elementary and cold quality, as by a certaine occult malignity, whereby it corrupteth the humours, and shaveth

The Yew.
* This is true in some countries, as in Provence, Italy, Greece, &c. but it is not so here with us in England, as both Lobell & daily experience can testifie.

The Antidote. the guts. The same things are good against this, as we have set downe against Hemlock; *Nicander* affirmes, that good wine being drunken is a remedy thereto. There is also malignity in a Wall-nut-tree, which *Grevious* affirmes that he found by experience, whilest hee unawares sate under one & slept there in the midst of Summer. For waking, he had a sense of cold over all his body, a heavinesse of his head, and paine that lasted sixe dayes. The remedies are the same as against the Yew.

The Wall-nut tree.

CHAP. XXXVI.

Of Bezoar, and Bezoartiske medicines.

What is poison.



OR that we have made mention of Bezoar, in treating of the remedies of poysons, I judge I shall not doe amisse, if I shall explaine, what the word meanes, and the reason thereof. Poyson absolutely taken is that which kils by a certaine specifick antipathy contrary to our nature. So an Antidote or Counter-poyson is by the Arabians in their mother tongue termed Bedezahar, as the preservers of life. This word is unknowne to the Greekes and Latines, and in use onely with the Arabians and Persians, because the thing it selfe first came from them, as it is plainly shewed by *Garcias ab horto*, Physician to the Vice-Roy of the Indies, in his history of the Spices and Simples of the East-Indies. In Persia (saith hee) and a certaine part of India is a certaine kinde of Goate called Pazain (wherefore in proper speaking, the stone should bee termed Pazar, of the word Pazain, that signifies a Goate; but wee corruptly terme it Bezar or Bezoar) the colour of this beast is commonly reddish, the height thereof indifferent, in whose stomack concretes the stone called Bezoar; it growes by little and little about a straw or some such like substance in scales like to the scales of an onion, so that when as the first scale is taken off, the next appeares more smooth and shining as you still take them away, the which amongst others is the signe of good Bezoar and not adulterate. This stone is found in sundry shapes, but commonly it resembles an Acorne or Date-stone; it is sometimes of a sanguine colour, and otherwhiles of a hony-like or yellowish colour, but most frequently of a blackish or dark greene, resembling the colour of mad Apples, or else of a Civet Cat. This stone hath no heart nor kernell in the midst, but powder in the cavity thereof, which is also of the same faculty. Now this stone is light, & not very hard, but so that it may easily be scraped, or rasped like alabaster, so that it will dissolve, being long macerated in water; at first it was common amongst us, and of no very great price, because our people who trafficked in Persia, bought it at an easie rate. But after that the faculties thereof were found out, it began to bee more rare and deare, and it was prohibited by an Edi& from the King of the countrey, that no body should sell a Goate to the stranger Merchants, unless he first killed him, and tooke forth the stone, & brought it to the King. Of the notes by which this stone is tryed, (for there are many counterfeits brought hither) the first is already declared; the other is, it may bee blowne up by the breath, like an oxes hide; for if the wind breake through, and doe not stay in the density thereof, it is accounted counterfeit. They use it, induced thereto by our example, not onely against poysons, but also against the bites of venemous beasts. The richer sort of the Countrey purge twice a yeare, to wit, in March and September; and then, five daies together they take the powder of this stone macerated in Rose-water, the weight of ten graines at a time: for by this remedy they thinke their youth is preserved, as also the strength of their members. There be some who take the weight of thirty graines; yet the more wary exceed not twelve grains. The same author addeth that he useth it with very good successe in inveterate melancholy diseases, as the itch, scab, tetters & leprosie; therefore by the same reason it may well be given against a quartaine feaver. Besides, hee affirmeth for certaine that the powder contained in the midst of the stone, put upon the bites of venemous beasts, presently freeth the patient from the danger of the poyson, as also applied to pestilent Carbuncles when they are opened, it drawes forth the venome. But because the small

A signe of true Bezoar.

The use of Bezoar.

pocks

pocks and meazles are familiar in the Indies, and oft-times dangerous, it is there given with good successe, two graines each day in Rose-water. *Mathiolus* subscribeth to this opinion of *Garcias*, witnessing that hee hath found it by frequent experience, that this stone by much exceeds not only other simple medicines of this kind, but also such as are termed *theriacalia*, and what other Antidotes soever. Hereto also contents *Abdalanarach*; Wee (saith he) have seene the stone which they call Bezahar, with the sonnes of *Almirama* the observer of the Law of God; with which stone hee bought a stately and almost princely house at Corduba.

Lib. 9. in Disf. cap. 73.

A history.

No one thing
can be an Antidote
against all
poyson.

The caustick
force of subli-
mate.

Some yeares agoe a certaine Gentleman, who had one of these stones which hee brought out of Spaine, bragged before King *Charles* then being at Clermont in Auvergne, of the most certaine efficacie of this stone against all manner of poysons. Then the King asked of mee, whether there were any Antidote which was equally and in like maner prevalent against all poisons? I answered, that nature could not admit it; for neither have all poysons the like effects, neither doe they arise from one cause; for some worke from an occult and specifick property of their whole nature, others from some elementary quality which is predominant. Wherefore each must be withstood with its proper and contrary Antidote, as to the hot, that which is cold, and to that which assailes by an occult proprietic of forme, another which by the same force may oppugne it, and that it was an easie matter to make triall hereof on such as were condemned to bee hanged. The motion pleased the King; there was a Cooke brought by the Jailor who was to have been hanged within a while after for stealing two silver dishes out of his masters house. Yet the King desired first to know of him, whether hee would take the poison on this condition, that if the Antidote which was predicated to have singular power against all manner of poisons, which should bee presently given him after the poison, should free him from death, that then he should have his life saved. The Cooke answered chearfully, that he was willing to undergo the hazzard, yea, and greater matters, not only for to save his life, but to shun the infamy of the death he was like to be adjudged to. Therefore he then had poyson given him by the Apothecarie that then waited, and presently after the poyton, some of the Bezahar brought from Spain, which being taken down, within a while after hee began to vomit, and to avoid much by stoole with grievous torments, and to cry out that his inward parts were burnt with fire. Wherefore, being thirsty, and desiring water, they gave it him; an houre after, with the good leave of the Jaylor, I was admitted to him; I find him on the ground going like a beast upon hands and feet, with his tongue thrust forth of his mouth, his eyes fierie, vomiting, with store of cold sweats, and lastly, the bloud flowing forth by his eares, nose, mouth, fundament and yard. I gave him eight ounces of oile to drinke, but it did him no good, for it came too late. Wherefore at length hee died with great torment and exclamation, the seventh houre from the time that hee tooke the poison being scarcely passed. I opened his body in the presence of the Jailor and foure others, and I found the botome of his stomacke blacke and dry, as if it had beene burnt with a Cautery; whereby I understood he had sublimate given him; whose force the Spanish Bezahar could not repress, wherefore the King commanded to burne it.

CHAP. XXXVII.

Of Minerall Poysons.

Minerals or mettals are either so taken forth of the bowels of the earth, or else from fornaes. Of these many are poisonous, as arsenicke, sublimate, laister, cerusse, lytharge, verdegreece, orpiment, filings of Iron, brasse, the load-stone, lime, and the like. Such as have taken sublimate, the tongue and jawes becomie straightned and rough, as if they drunke the juice of unripe services: you cannot amend this asperity with lenitive gargarismes but with much labour and time; for as soone as it descends into the stomack, it sticketh to it. Therefore presently after it frets and exulcerates; it causeth unquench-

The symptoms
of such as have
taken sublimate.

able thirst, and unexplicable torments; the tongue is swolne, the heart faints, the urine is supprest, the chest can scarce performe the office of breathing, the belly is griped, and so great paines happen to the other extreme parts, that unlesse they bee helped, the patient will die; for presently will grow upon them, unlesse it be speedily hindred, the devouring and fierie furie of the poyson, rending or eating into the guts and stomacke, as if they were seared with an hot iron, and bloud floweth forth of the ears, nose, mouth, urenaric passage and fundament, and then their case is desperate. These and who else soever shall take any corroding poyson, shall be cured with the same remedies, as those that have taken *Cantharides*.

Verdegreece. Verdegreece so stops the instruments of respiration, that it strangles such as have taken it. The cure is performed by the same remedies as helpe those that have taken Arsenick.

Litharge. Litharge causeth a heavinesse in the stomack, suppresseth the urine, makes the body swelled and livide. Wee remedy this, by giving a vomit presently, then after it pigeons dung mixed in strong wine, and so drunken. *Peter Aponensis* wisheth to give oile of sweet almonds and figs. Also it is good to give relaxing and humecting glysters, and to anoint the belly with fresh butter, or oile of lillies.

The scales of brasse. The scales of brasse drunke by troubling the stomacke, cause a casting and scouring. The remedie is, if the patient forthwith vomit, if he enter into a bath made of the decoction of snails, if he annoint his belly and breast with butter and oile of lillies, and inject laxative and humecting glysters.

The Loadstone. The Loadstone makes them mad that take it inwardly. The Antidote thereof is the powder of gold and an emerald drunk in strong wine, and glysters of milke and oile of sweet almonds.

Filings of Lead & scales of Iron. The filings of lead, and the scales or refuse of iron, cause great torment to such as take them downe. The which we helpe with much milke and fresh butter dissolved therein, or with oile of sweeralmonds drawne without fire, with relaxing and humecting glysters used untill the paine be perfectly asswaged.

Arsnick, Roseaker or Ratf-bane. *Risagallum*, Roseaker or Ratf-bane, because it is of a most hot and dry nature, induces thirst and heat over all the body, and so great colliquation of all the humours, that although the patients by medicines speedily given escape death, yet can they not during the residue of their lives, use their members as they formerly did, being destitute of their strength, by reason of the great drynesse and contraction of the joynts. The Antidote thereof is oyle of pine kernels speedily given, and that to the quantity of halfe a pint; then procure vomit, then give much milke to drink, and glysters of the same, and let them sup up fat broths.

Unquenched Lime and Orpiment. Unquenched Lime and *Auripigmentum*, or Orpiment drunke, gnaw the stomacke and guts with great tormenting paine, and cause unquenchable thirst, an asperity of the jawes and throat, difficulty of breathing, stoppage of the urine, and a bloody flux. They may bee helped by all fat, humecting, and relaxing things which retund the acrimonic, by lenitive potions, and such things as lubricate the belly; as also by creames, and the mucilages of some seeds, as with a decoction of the seeds of Line, mallowes, marsh-mallowes and other such things set downe at large in the cure of *Cantharides*.

Aqua fortis. These exceeding acride and strong waters wherewith Gold-smithes and Chymists separate gold from silver, being taken into the body, are hard to cure, because they are forthwith diffused over all the body, first burning the throat and stomacke. Yet it may be helped by the meanes prescribed against unquenched Lime and Orpiment.

Cerusse. Cerusse causeth hicketting and a cough, makes the tongue dry, & the extreme parts of the body numbe with cold, the eyes heavie to sleepe. The patients very often in the midst of the day see some vain phantasie or apparition, which in deed is nothing; they make a blacke and oft-times bloody water, they die strangled unlesse they bee helped. The Antidote, in the opinion of *Aetius* and *Avicen*, is scammonie drunk in new wine, or hony and wine, and other diuretick things, and such things as procure vomit, and purge by stoole.

Plaister. Plaister, because it concreteth and becommeth stony in the stomacke, causeth strangula-

strangulation by straitening and stopping the instruments that serve for breathing. The patients receive cure by the same remedies, as those who have eaten mushrooms, or drunke Cerusse: you must adde Goose-grease in the glysters, and anoint the belly with oyle of lillies and butter.

CHAP. XXXVIII.

of Quick-silver.

Quick-silver is so called because it resembleth silver in the colour, and is in perpetuall motion, as if it had a spirit or living soule. There is a great controversie amongst authors concerning it. For most of them affirme it hot, amongst whom is *Galen, Halyabas, Rhases, Aristotle, Constantine, I. sack, Platearius, Nicholas Massa*: they maintain their opinion by an argument drawn from things helping and hurting; besides from this, that it is of such subtile parts, that it penetrates, dissolves, and performeth all the actions of heate upon dente and hard mettals; to wit, it attenuateth, incideth, dryeth, causeth salivation by the mouth, purgeth by the stoole, moveth urine and sweat over all the body, neither doth it stirre up the thinner humours onely, but in like sort the grosse, rough and viscous, as those which have the *Lues Venerea* find by experience, using it either in ointments or plasters.

Others affirme it very cold and moyst, for that put into emplasters and so applied, it asswageth paine by stupefaction, hindring the acrimony of pustles and chole-
rick inflammations. But by its humidity it softeneth scirrhus tumours, dissolveth and dissipateth knots and *tophous* knobs; besides, it causeth the breath of such as are anointed therewith to stinke, by no other reason, than that it putrefies the obvious humours by its great humidity. *Avicens* experiment confirmes this opinion, who affirmeth, that the blood of an Ape that drunke Quicksilver, was found concrete about the heart, the carcassee being opened. *Mathiolus*, moved by these reasons, writes that Quicksilver killeth men by the excessive cold and humide quality, if taken in any large quantity, because it congeales the blood and vitall spirits, and at length the very substance of the heart, as may bee understood by the history of a certaine Apothecary, set downe by *Conciliator*; who, for to quench his feaverish heat, in stead of water, drunke off a glasse of Quicksilver, for that came first to his hands; hee dyed within a few houres after, but first hee evacuated a good quantity of the Quicksilver by stoole, the residue was found in his stomach being opened, and that to the weight of one pound; besides, the blood was found concrete about his heart. Others use another argument to prove it cold, and that is drawne from the composition thereof, because it consists of lead and other cold mettals. But this argument is very weak. For unquenched Lime is made of flints and stony matter, which is cold, yet nevertheless it exceeds in heat. *Paracelsus* affirmeth that quicksilver is hot in the interior substance, but cold in the exterior, that is, cold as it comes forth of the mine. But that coldnesse to bee lost as it is prepared by art, and heat onely to appeare and bee left therein, so that it may serve in stead of a tincture in the transmutation of mettals. And verily it is taken for a rule amongst Chymists, that all metals are outwardly cold, by reason of the watery substance that is predominant in them, but that inwardly they are very hot, which then appeares when as the coldnesse together with the moisture is segregated, for by calcination they become caustick. Moreover many account quicksilver poyson, yet experience denyes it. For *Marianus Sanctus Barali-
zanus* tels that hee saw a woman, who for certaine causes and affects, would at severall times drink one pound and an halfe of quicksilver, which came from her againe by stoole without any harme. Moreover he affirmeth that hee hath knowne sundry who in a desperate Cholicke (which they commonly call *miserere mei*) have beene freed from imminent death, by drinking three pounds of quicksilver with water onely. For by the weight it opens and unfolds the twined or bound up gut, and thrusts forth the hard and stopping excrements; he addeth that others have found this medicine

Thereason why
it is so called.

Lib. 4. simpl. in 2.
practic. cap. 148.
3. ad Alman.
4. Meteor.

In l. 6. Diosc. c. 28.

A historie.

Lib. 4. de nar-
rerum.

Tract. de casu
& offen.

Quicksilver
good for women
in travaile.

For the disease
called *maum
sancti manis*.

Lib 7. de comp.
med. secund' loc.
Against malign
ulcers.

Against the Pa-
rotides.

Against lice &
fleas &c.
The kinds
thereof.

dicine effectually against the cholick, drunke in the quantity of three ounces. *Antonius Musa* writes, that hee usually giveth quicksilver to children ready to dye of the wormes. *Avicen* confirmeth this, averring that many have drunke quicksilver without any harme, wherefore hee mixeth it in his ointments against scales and scabs in children; whence came that common medicine amongst the countrey people to kill lice by anointing the head with quicksilver mixed with butter or *axungia*. *Matthiolus* affirmeth that many think it the last and chiefeft remedy to give to women in travaile that cannot bee delivered. I protest, to satisfie my selfe concerning this matter, I gave to a whelp a pound of quicksilver, which being drunke downe, it voyded without any harme by the belly. Whereby you may understand that it is wholly without any venomous quality. Verily it is the onely and true Antidote of the *Lues Venerea*, and also a very fit medicine for maligne ulcers, as that which more powerfully impugnes their malignity than any other medicines that worke onely by their first qualities. Besides, against that contumacious scabbe, which is vulgarly called *Malum sancti manis*, there is not any more speedy or certaine remedy. Moreover *Guido* writes, that if a plate of lead bee besmeared or rubbed therewith, and then for some space laid upon an ulcer, and conveniently fastned, that it will soften the callous hardnesse of the lips thereof, and bring it to cicatrization, which thing I my selfe have oftentimes found true by experience.

Certainely before *Guido*, *Galen* much commended quicksilver against maligne ulcers & cancers. Neither doth *Galen* affirm that lead is poysonous (which many affirm poysonous, because it consists of much quicksilver) but hee onely saith thus much, that water too long kept in leaden pipes & cisternes, by reason of the drossinesse that it useth to gather in lead, causeth bloody fluxes, which also is familiar to brasse and copper. Otherwise many could not without danger beare in their bodies leaden bullets during the space of so many yeares, as usually they doe. It is declared by *Theodoricke Heruy* in the following histories, how powerfull quicksilver is to resolve and assuage paines and inflammations. Not long since, (saith hee) a certaine Doctor of Physick his boy was troubled with *parotides*, with great swelling, heat, pain & beating; to him, by the common consent of the Physicians there present, I applyed an anodine medicine, whose force was so great, that the tumor manifestly subsided at the first dressing, and the paine was much asswaged. At the second dressing all the symptoms were more mitigated. At the third dressing, I wondring at the so great effects of an Anodine Cataplasme, observed that there was quicksilver mixed therewith, and this happened through the negligence of the Apothecarie, who mixed the simple Anodine medicine prescribed by us, in a mortar wherein but a while before he had mixed an oyntment whereinto quicksilver entred, whose reliques, and some part thereof yet remained therein. This which once by chance succeeded well, I afterwards wittingly and willingly used to a certaine Gentlewoman troubled with the like disease, possessing all the region behind the eares, much of the throate, and a great part of the cheeke, when as nature helped by common remedies, could not evacuate neither by resolution nor suppuration, the contained matter greatly vexing her with paine and pulsation. I to the medicine formerly used, by the consent of the Physicians, put some quicksilver, so within a few dayes, the tumour was digested and resolved. But some will say, it resolves the strength of the nerves and limbs, as you may see by such as have bene anoynted therewith for the *Lues venerea*, who tremble in all their limbs during the rest of their lives. This is true, if any use it too intemperately without measure, and a disease that may require so great a remedy; for thus we see that Gilders, Plumbers and such as digge in mines, by the continuall ascent of the vapours of quicksilver to the braine, the fountaine of the nerves, by resolving the spirits, and dissipating the radicall and substantifick moytture, maketh them subject to the trembling of their joints. Verily if it bee killed and incorporate with hogs greace, and a list besmeared therewith, which may encompasse the body like a girdle, it will drive away lice, fleas and *cimices*, and anoynted about the navell, it kills the wormes in the guts. There are two sorts of quicksilver, the one naturall, the other artificall. The naturall is found running or flowing in the veins and bowels of the earth, and amongst metals, and in the fornaces of silver mines. The Arti-


ficiall

ficiall is made of *minium* (as it is in *Vitruvius*) and of the powder of Ivory. Also it is probable that by art it may bee extracted out of all metals, but chiefly out of Lead and *Cinnabaris*. You may easily distinguish these kindes by the dull and blackish colour, tough and grosse substance, which as it runs, leaves an impression like melted greace, being as it were the excrement of lead. The best quicksilver of all is pure, cleare, thin and very white: it may bee cleansed with the drosse of Lead, and becomes more thin, being boyled in sharpe vinegar, with sage, rosemary, time, lavender. Or else give it by a pound at a time to a whelpe, to drinke downe, and being cast forth by it, boyle it againe in vinegar, for thus it hath wondrous faculties, and fitly given produceth marvellous effects; nothing is more contrary thereto than fire. For quicksilver, though of its owne nature ponderous, flyeth upwards by the force of the fire, and forsaketh gold by that meanes, than which nothing is more friendly to it.

How to puri-
se it.

CHAP. XXXIX.

Of the Unicorne's Horne.

 Here are very many at this day who thinke themselves excellently well armed against poyson and all contagion, if they be provided with some powder of Unicorne's horne, or some infusion made therewith. Therefore I have thought it good to examine more diligently how much truth this inveterate, and grounded opinion hath. The better to performe this taske, I will propound three heads, whereto I will direct my whole discourse. The first shall be of the signification of this word Unicorn. The second, whether there be any such thing really and truly so called, or whether it bee not rather imaginary; like as the *Chymera* and *Tragelaphus*? The third, whether that which is sayd to be the horne of such a beast, hath any force or faculty against poysons? For the first, that is, the name, it is somewhat more obscure what the word (*being Licorne*) in French may signifie, than what the Latine or Greek word is. For the French name is further from the word and signification; but it is so clear and manifest, that this word *Unicornis* amongst the Latines signifieth a beast having but one horn, as it is vulgarly known, the same thing is meant by the Greek word *Monoceros*. But now for the second, I thinke that beast that is vulgarly called & taken for an Unicorn, is rather a thing imaginary than really in the world. I am chiefly enduced to beleieve thus, by these conjectures. Because of those who have travelled over the world, there is not one that professeth that ever he did see that creature. Certainly the Romans conquering the world, & being most diligent searchers after all things which were rare and so excellent, if any where in any corner of the world, this beast could have been found, they would have found it out, and engraven it upon their coynes, or Armes, as they did Crocodiles, Elephants, Eagles, Panthers, Lyons, Tygers, and other creatures unknowne to these countreyes. For these that have written of the Unicorn, either that they have heard, or that hath been delivered by tradition, or what they in their owne mindes and fancies have conceived, you shall scarce finde two that agree together, either in the description of the body, or in the nature and condition of her. *Pliny* writes, that Unicorne's are for the fashion of their bodies like to an horse; that is, as *Cardane* interprets it, of the bignesse of a horse, with the head of an Hart, the feet of an Elephant, the taile of a Boare, with one black horne in the midst of his forehead, of the length of two cubits. *Munster*, who (as *Masholus* jests) never saw Unicorne's besides painted ones, doth on the contrary affirme them not to be of the bignesse of an horse, but of an hind calfe of three moneths old, not with feet like an Elephant, but cleft like those of goats, with an horne not only of two, but oftentimes of three cubits long, of a weazell colour, with a necke not very long, nor very hairy, but having few and short haire hanging to the one side of the necke. the legs are leane and small, the buttocks high, but very hairy. *Cardane* dissenting from both these, writes, that hee hath an horne in the midst of his forehead, but that it is onely the length of three fingers,

What the name
imports.

That there is no
such beast as an
Unicorne.

Lib 8. cap. 11.

Munsters opini-
on concerning
Unicorne's.

Tom. 1. lib. 5.
Cap. 5. cosmogr.

fingers. *Andrew Thevet* mentions an Unicorne scene by a certaine Turkish Sang-jach, which was of the bignesse of a Bull of five or six moneths old, and had one horne, but that not in the midst of the forehead, but upon the top of the crowne of the head; he was legg'd and footed like an Asse, but longer haired, and had eares not much unlike the Rangifer, a beast not unknowne in the subpolare or northern countries.

Varotmans
opin. on of the
nature of the
Unicorne.

Thus various therefore is the report concerning the shape of this Beast. Neither is there lesse difference concerning her nature and conditions. For *Pliny* writes that the Unicorne is a most fierce beast, and hath a great bellowing voice, and that shee cannot therefore be taken alive. *Cardane* renders a reason of this fiercenesse, Because (saith he) it inhabits the desarts of *Aethiopia*, a region squalide, and filthy, abounding with toads and such like venomous creatures. Others on the contrary affirme her to bee of a most milde, amiable, and gentle nature of all others, unlesse one purposely offend her, or use her too harshly; for seeing shee feeds not by stooping her head to the ground, because shee is hindered therefrom by the length of her horne, she must necessarily feed upon the fruit that hangeth upon trees; out of cratches or mans hand she fearlessly and harmelesly takes all manner of fruits, herbs, sheaves of corn, apples, peares, oranges and pulse. And herein they have proceeded so farre, that they feign they will love Virgins, entised by their beauty, so that stayed in the contemplation of them, and allured by their entisements, they by this meanes are often taken by hunters. In this opinion is *Lewes Vartoman*, who denies that Unicornes are wild or fierce; for he saith that he saw two, which were sent out of *Aethiopia* to the Sultan, who kept them shut up in Pennes, in *Mecha*, a city of *Arabia felix*, renowned by the Sepulcher of *Mabomet*. *Thevet* travailling thither, tels that he diligently enquired of the inhabitants, what their opinion was of such a beast, yet could he never heare any tidings thereof. Whence it is easie to discern, that such beasts have neither beene in our, nor in *Vartomans* times. The so great variety of dissenting opinions, easily induceth me to beleve that this word, Unicorne, is not the proper name of any beast in the world, and that it is a thing onely feigned by Painters, and Writers of naturall things, to delight the readers and beholders. For as there is but one right way, but many by waies and windings, so the speech of truth is but one, and that alwaies simple and like it selfe; but that of a lye is divers, and which may easily refell it selfe, by the repugnancie and incongruity of opinions, if one should say nothing. What therefore (will some say) of what creatures are these hornes, which we see wholly different from others, if they be not of Unicorns? *Thevet* thinks them nothing else than Elephants bones turned and made into the fashion that wee see them; for thus in the Eastern countreies, some crafty merchants and cunning companions turne, hollow, and being softened, draw to what length they please the teeth of the fish Roharde, which lives in the Red and *Aethiopian* Sea, and being so handled, they sell them for Unicornes horne. Verily that which is termed Unicornes horne being burnt, sends forth a smell like to Ivory. Now *Cardanus* affirms that the teeth and bones of Elephants made soft by art, may bee drawne forth, and brought into what forme you please, like as Oxe bones are. For what is there in the world which the thirsting desire of gold will not make men to adulterate and counterfeit? But it is time that we come to the third scope. Grant there be Unicorns, must it therefore follow that their hornes must be of such efficacy against poysons? If we judge by events, and the experience of things, I can protest thus much, that I have often made tryall thereof, yet could I never find any good successe in the use thereof against poysons, in such as I have had in cure. If the matter must bee tryed by witnesses and authorities, a great part of the Physitians of better note have long since bid it adieu, and have detracted from the divine and admirable vertues for which it formerly was so much desired. And this they have done, moved thereto by many just, but two especiall reasons. The first is of *Rondeletius*, who in this case affirms that horns are endued with no taste nor smell; and therefore have no effect in physicke, unlesse it bee to dry. Neither (saith hee) am I ignorant that such as have them, much predicate their worth, so to make the greater benefit and gaine by them, as of the shavings or scrapings of Unicornes horne, which they sell for the weight in gold, as that which is singular

What the ordinary Unicorns
hornes are.

The Unicornes
horne is not ef-
fectuall against
poyson.

Lib. de ponder.
cap. 19
Hornes and
bones not ef-
fectuall unlesse
to dry.

singular

singular good against poysons and wormes, which things I thinke Harts-horne and Ivory doe no lesse effectually performe; which is the cause why for the same disease, and with the like successe, I prescribe Ivory to such as are poor, and Unicornes horn to the rich, as that they so much desire. This is the opinion of *Rondeletius*, who without any difference was wont for Unicornes horne to prescribe not onely Harts-horn or Ivory, but also the bones of Horses and Dogges, and the stones of Myrabalanes. Another reason is, that whatsoever resists poyson is cordiall, that is fit to strengthen the heart, which is chiefly assailed by poysons; but nothing is convenient to strengthen the heart, unlesse it bee by laudible blood or spirit, which two are onely familiar to the heart, as being the work-house of the arterious blood and vitall spirits. For all things are preserved by their like, as they are destroyed by their contraries; for all things that generate, generate things like themselves. But Unicornes horne, as it contains no smell, so neither hath it any aëry parts, but is wholly earthy and dry; neither can it bee converted into blood by the digestive faculty, for as it is without juice, so is it without flesh. For as it cannot bee turned into *Chylus*, so neither is it fit to become *Chymus* (that is) juice or blood. Therefore it is joyned to the heart by no similitude nor familiarity. Furthermore, there is not a word in *Hippocrates* and *Galen* concerning the Unicornes horne, who notwithstanding have in so many places commended Harts-horne. Therefore D. *Chapelsaine*, the chiefe Physitian of King *Charles* the ninth, often used to say, that hee would very willingly take away that custome of dipping a piece of Unicorns horn in the Kings cup, but that he knew that opinion to be so deeply ingrafted in the minds of men, that he feared, that it would scarce be impugned by reason. Besides (he said) if such a superstitious medicine do no good, so certainly it doth no harme, unlesse it be to their estates that buy it with gold, or else by accident, because Princes, whilst they rely more than is fitting upon the magnified vertues of this horne, neglect to arme themselves against poysons by other more convenient meanes, so that Death oft-times takes them at unawares. When as upon a time I enquired of *Lewes Duret* the Kings Physitian and Proteffor (by reason of the great opinion that all learned men justly had of his learning and judgement) what he thought of this horne. He answered, that he attributed no faculties thereto: for the confirmation whercof he rendred the second reason I have formerly given, but more largely and elegantly; neither feared he to affirme it aloud, & in plain words to his auditory of learned men, comming from all parts to hear him. But if at any time (or come by the fault of the times & place) he prescrib'd this horn, that he did it for no other entent, than to help faintings or swoonings that happen by the abundance of ferous humors, floating in the orifice of the ventricle, which makes men ill disposed, because this mixed with other things endued with the like faculty, hath power to drinke up the waterish humidity by its earthy drinesse. But some will reply, that neither the Lemnian, nor Armenian earth, have any juice in them, neither any smell, nor aëry spirit. It is granted, neither truely are such things truely and properly called cordiall, but onely by event and accident, for that by the excellent astrictive faculty they have, and stopping the passages of the vessels, they hinder the poyson from entring into the heart. This is my opinion of Unicornes horne, which if any doe not approve of, hee shall doe mee a favour, if for the publike good, hee shall freely oppose his; but in the interim take this in good part which I have done.

In what cases
good.

The End of the One and Twentieth Booke.

THE UNIVERSITY OF CHICAGO



OF THE P L A G U E.

THE TWENTIE SECOND BOOKE.

CHAP. I.

The description of the Plague.

THE Plague is a cruell and contagious disease, which every where, like a common disease, invading Man and Beast, kills very many; being attended, and as it were associated with a continuall Feaver, Botches, Carbuncles, Spots, Nauseousnesse, Vomitings, and other such maligne accidents. This disease is not so pernicious or hurtfull, by any elementary quality, as from a certain poysonous & venenate malignity, the force wherof exceeds the condition of common putrefaction. Yet I will not deny but that it is more hurtfull in certain bodies, times and regions, as also many other diseases, of which *Hippocrates* makes mention. But from hence we can only collect, that the force and malignity of the plague, may be encreased, or diminished, according to the condition of the Elementary qualities concurring with it, but not the whole nature and essence thereof to depend thereon. What the plague is.

This pestiferous poyson principally assailes the Vitall spirit, the Store-house and originall whercof is the Heart, so that if the Vitall Spirit prove stronger, it drives it far from the Heart; but if weaker, it being overcome and weakened by the hostile assault, flies backe into the fortresse of the Heart, by the like contagion infecting the heart, and so the whole Body, being spread into it by the passages of the Arteries. How it comes to kill.

Hence it is, pestilent Feavers are sometime simple and solitary, other-whiles associated with a troope of other affects, as Botches, Carbuncles, Blaines, and Spots, of one or more colours.

It is probable such affects have their originall from the expulsive Faculty, whether strong or weak, provoked by the malignity of the raging matter: yet assuredly divers symptomes and changes arise, according to the constitution of the body of the Patient, and condition of the humor in which the virulency of the plague is chiefly inherent, and lastly, in the nature of the efficient cause. The originall Bubo's, Carbuncles, &c. in the plague.

I thought good, by this description, to expresse the nature of the plague, at this my first entrance into this matter, for we can scarce comprehend it in a proper definition. For although the force thereof be definite and certaine in nature, yet it is not altogether certaine and manifest in mens minds, because it never happens after one sort: so that in so great variety, it is very difficult to set down any thing generall and certaine.

CHAP. II.

Of the Divine causes of an extraordinary Plague.

*Amos 3.
Añs 17*

*The second
causes have
their power
from God as
the first cause.*

It is a confirmed, constant, and received opinion in all Ages amongst Christians, that the plague and other diseases, which violently assaile the life of man, are often sent by the just anger of God punishing our offences. The Prophet *Amos* hath long since taught it, saying, *Shall there be affliction, shall there be evill in a City, and the Lord hath not done it?* On which truly we ought daily to meditate, and that for two causes: The first is, that wee alwaies beare this in minde, that wee enjoy health, live, move, and have our brings from God, and that it descends from that Father of Light: and for this cause we are alwaies bound to give him great and exceeding thanks. The other is, that knowing the calamities, by sending whereof the Divine anger proceeds to revenge, wee may at length repent, and leaving the way of wickednesse, walke in the pathes of godlinesse. For thus we shall learne to see in God, our selves, the Heaven and Earth, the true knowledge of the causes of the plague, and by a certaine Divine Philosophy teach, God to bee the beginning and cause of the second causes, which cannot well without the first cause goe about nor attempt, much lesse performe any thing. For from hence they borrow their force, order, and constancy of order; so that they serve as Instruments for God, who rules and governes us, and the whole World, to performe all his workes, by that constant course of order, which hee hath appointed unchangeable from the beginning. Wherefore all the cause of a plague is not to bee attributed to these neere and inferiour causes or beginnings, as the Epicures and Lucianists commonly doe, who attributing too much, yea all things to nature, have left nothing to Gods providence. On the contrary, wee ought to thinke, and beleieve in all our things, That even as God by his omnipotent Power hath created all things of nothing, so he by his eternall Wisedome preserves and governes the same, leads and enclines them as he pleaseth, yea verily at his pleasure changeth their order, and the whole course of Nature.

This cause of an extraordinary Plague, as wee confesse and acknowledge, so here we will not prosecute it any further, but thinke fit to leave it to Divines, because it exceeds the bounds of Nature, in which I will now contain my selfe. Wherefore let us come to the naturall causes of the plague.

CHAP. III.

Of the Naturall Causes of the Plague, and chiefly of the Seminary of the Plague by the corruption of the Aire.

*The generall
causes of the
plague.*

*Lih. 6. de loc.
affectis.*

*How the seasons
of the yeere
may be said to
want their sea-
sonablenesse.*



THE generall and naturall causes of the Plague are absolutely two, that is, the infection of corrupt Aire, and a preparation and fitnessse of corrupt humours to take that infection; for it is noted before out of the doctrine of *Galen*, that our humours may bee corrupted, and degenerate into such an alienation which may equall the malignity of Poyson.

The Aire is corrupted, when the foure seasons of the yeere have not their seasonablenesse, or degenerate from themselves, either by alteration, or by alienation: as if the constitution of the whole yeere bee moist and rainy by reason of grosse and blacke Cloudes; if the Winter bee gentle and warme without any Northerly wind, which is cold and dry, and by that meanes contrary to putrefaction; if the spring which should be temperate, shall be faulty in any excesse of distemper; if the Autumn shall be ominous by Fires in the Aire, with stars shooting, and as it were falling down, or terrible comets, never seen without some disafter; if the summer be hot, cloudy and moist, and without winds, and the clouds flie from the South into

into the North. These and such like unnaturall constitutions of the seasons of the yeere, were never better, or more excellently handled by any, than by *Hippocrates* in his bookes *Epidemion*. Therefore the Aire from hence drawes the seeds of corruption and the Pestilence, which at the length, the like excesse of qualities being brought in, it sends into the humours of our bodies, chiefly such as are thinne and ferous. Although the pestilence doth not alwaies necessarily arise from hence, but somewhiles some other kinde of cruell and infectious disease.

But neither is the aire onely corrupted by these superiour causes, but also by putride and filthy stinking vapours spread abroad through the Aire encompassing us, from the Bodies and Carcasses of things not buried, gapings and hollownes of the earth, or sinkes and such like places being opened: for the sea often overflowing the land in some places, & leaving in the mud or hollownes of the earth (caused by earth-quakes) the huge bodies of monstrous Fishes, which it hides in its waters, hath given both the occasion and matter of a plague. For thus in our time, a Whale cast upon the Tuscan shore, presently caused a plague over all that country.

How the aire
may be corrup-
ted.

But as fishes infect and breed a plague in the aire, so the aire being corrupted often causeth a pestilence in the sea among fishes, especially when they either swim on the top of the Water, or are infected by the pestilent vapours of the Earth lying under them, & rising into the aire through the body of the water, the latter whereof *Aristotle* saith, hapneth but seldome. But it often chanceth, that the plague raging in any country, many fishes are cast upon all the coast, and may be scene lying on great heaps. But sulphureous vapours, or such as partake of any other maligne quality, sent forth from places under the ground, by gapings and gulfs opened by earthquakes, not only corrupt the aire, but also infect and taint the Seeds, Plants, and all the fruits which we eat, and so transferre the pestilent corruption into us, and those beasts on which we feed, together with our nourishment. The truth whereof *Empedocles* made manifest, who by shutting up a great Gulf of the earth, opened in a valley between two mountaines, freed all Sicily from a plague caused from thence.

Lib. 8. hist. anim.

If winds rising suddenly shall drive such filthy exhalations from those regions in which they were pestiferous, into other places, they also will carry the Plague with them thither.

If it be thus, some will say, it should seeme that wheresoever stinking and putride exhalations arise, as about standing Pooles, Sinkes and Shambles, there should the Plague reigne, and straight suffocate with its noysome poyson the people which worke in such places: but experience findes this false.

We doe answer, that the putrefaction of the plague is farre different, and of another kinde than this common, as that which partakes of a certaine secret malignity, and wholly contrary to our lives, and of which wee cannot easily give a plaine and manifest reason. Yet that vulgar putrefaction wheresoever it bee, doth easily and quickly entertaine and welcome the pestiferous contagion, as often as, and whensoever it comes, as joyned to it by a certaine familiarity, and at length, it selfe degenerating into a pestiferous malignity, certainly no otherwise than those diseases which arise in the plague time, the putride diseases in our bodies, which at the first wanted virulency and contagion, as Ulcers, putride Feavers, and other such diseases, raised by the peculiar default of the humours, easily degenerate into pestilence, presently receiving the tainture of the plague, to which they had before a certain preparation. Wherefore in time of the plague, I would advise all Men to shunne such exceeding stinking places, as they would the plague it selfe: that there may be no preparation in our bodies, or humours to catch that infection (without which, as *Galen* teacheth, the Agent hath no power over the Subject, for otherwise in a plague time, the sickness would equally seaze upon all) so that the impression of the pestiferous quality may presently follow that disposition.

Pestiferous putrefaction is far different from ordinary putrefaction.

In a pestilent constitution of the aire, all diseases become pestilent.

Lib. 1. de differ. feb. 50

But when we say the aire is pestilent, we do not understand that sincere, elementary, and simple as it is of its own nature, for such is not subject to putrefaction, but that which is polluted with ill vapours rising from the earth, standing waters, vaults, or sea, and degenerates, and is changed from its native purity & simplicity. But certainly amongst all the constitutions of the Aire, fit to receive a pestilent corruption, there

How the aire may be said to putrefie.

A Southerly
constitution of
the aire is the
fault of the
Plague.

is none more fit than a hot, moyst and still season : For the excesse of such qualities easily causeth putrefaction. Wherefore the South wind reigning, which is hot and moyst, and principally in places neare the Sea, there flesh cannot long be kept, but it presently is tainted and corrupted.

Further, wee must know, that the pestilent malignity which riseth from the carcasses or bodies of men, is more easily communicated to men ; that which riseth from oxen, to oxen ; and that which comes from sheepe, to sheepe, by a certaine sympathy and familiarity of Nature : no otherwise than the Plague which shall seaze upon some one in a Family, doth presently spread more quickly amongst the rest of that Family, by reason of the similitude of temper, than amongst others of another Family, disagreeing in their whole temper. Therefore the Aire thus altered and estranged from its goodnesse of nature, necessarily drawn in by inspiration and transpiration, brings in the seeds of the Plague, and so consequently the Plague it selfe, into bodyes prepared and made ready to receive it.

CHAP. IIII.

Of the preparation of humours to putrefaction, and admission of pestiferous impressions.



AVING shewed the causes from which the Aire doth putrefie, become corrupt, and is made partaker of a pestilent and poysonous constitution, wee must now declare what things may cause the humours to putrefie, and make them so apt to receive and retaine the pestilent Aire and venenate quality.

Three causes of
the putrefaction
of humours.

Humours putrefie either from fulnesse, which breeds obstruction, or by distemperate excesse, or lastly, by admixture of corrupt matter & evill juice, which ill feeding doth specially cause to abound in the body : For the Plague often followes the drinking of dead and mustie Wines, muddy and standing waters, which receive the sinks and filth of a City ; and fruits and pulse eaten without discretion in scarcity of other Corn, as Pease, Beans, Lentils, Vetches, Acorns, the roots of Fern, & Grals made into Bread. For such meats obstruct, heap up ill humours in the body, & weaken the strength of the faculties, from whence proceeds a putrefaction of humours, and in that putrefaction a preparation and disposition to receive, conceive and bring forth the Seeds of the Plague : which the filthy scabs, maligne sores, rebellious ulcers, and putrid feavers, being all forerunners of greater putrefaction and corruption, doe testifie. Vehement passions of the minde, as anger, sorrow, griefe, vexation and feare, helpe forward this corruption of humours, all which hinder natures diligence and care of concoction : For as in the dog-dayes, the Lees of wine subsiding to the bottome, are by the strength and efficacy of heat drawne up to the top, and mixed with the whole substance of the wine, as it were by a certaine ebullition, or working : So melancholy humours, being the Dregs or Lees of the blood, stirred up by the passions of the mind, defile or taint all the blood with their feculent impurity.

Passions of the
mind helpe for-
ward the putre-
faction of the
humours.

We found that some years agoe by experience, at the battell of *St. Dennis*. For all wounds, by what weapon soever they were made, degenerated into great and filthy putrefactions & corruptions, with feavers of the like nature, & were commonly determined by death, what medicines, & how diligently soever they were applyed, which caused many to have a false suspicion that the weapons on both sides were poisoned. But there were manifest signes of corruption and putrefaction in the blood let the same day that any were hurt, and in the principall parts dissected afterwards, that it was from no other cause, than an evill constitution of the Aire, and the minds of the Souldiers perverted by hate, anger and feare.

CHAP. V.

What signes in the Aire and Earth prognosticate a Plague.

WEE may know a Plague to bee at hand and hang over us, if at any time the Aire, and seasons of the yeare swarve from their naturall constitution, after those wayes I have mentioned before; if frequent and long continuing Meteors or sulphureous Thunders infect the Aire; if fruits, seeds and pulse be worme-eaten; If Birds forsake their nests, egges or Young, without any manifest cause; if we perceive women commonly to abort, by continuall breathing in the vaperous Aire, being corrupted and hurtfull both to the Embrion and originall of life, and by which it being suffocated, is presently cast forth and expelled. Yet notwithstanding, those airy impressions doe not solely corrupt the Aire, but there may be also others rayled by the Sunne from the filthy exhalations, and poysonous vapours of the earth and waters, or of dead carcasses, which by their unnaturall mixture, easily corrupt the Aire, subject to alteration, as which is thin and moyst, from whence divers Epidemiall diseases, and such as every-where seaze upon the common sort, according to the severall kinds of corruptions, such as that famous Catarrhe with difficulty of breathing, which in the yeare 1510. went almost over the World, and raged over all the Cities and Townes of France, with great heaviness of the head (whereupon the French named it *Cuculla*) with a straitness of the heart and lungs, and a Cough, a continuall Feaver, and sometimes raving.

Why Abortions are frequent in a pestilent season.

A Catarrhe with difficulty of breathing killing many.

This, although it seazed upon many more than it killed, yet because they commonly dyed who were either let blood, or purged, it shewed it selfe pestilent by that violent and peculiar and unheard of kinde of malignity.

Such also was the English Sweating-sickness, or Sweating-feaver, which unusually, with a great deal of terrour invaded all the lower parts of Germany, and the Low Countreyes from the yeare 1525. unto the yeare 1530. and that chiefly in Autumne.

The english sweating sickness.

As soone as this pestilent disease entred into any City, suddenly two or three hundred fell sick on one day, then it departing thence to some other place. The people stricken with it languishing, fell down in a swoone, and lying in their beds, sweat continually, having a feaver, a frequent, quick, and unequall pulse; neither did they leave sweating till the disease left them, which was in one or two dayes at the most: yet freed of it, they languished long after, they all had a beating, or palpitation of the heart, which held some for two or three yeeres, and others all their life after.

At the first beginning it killed many, before the force of it was knowne: but afterwards very few, when it was found out by practice and use, that those who furthered and continued their sweats, and strengthened themselves with Cordials, were all restored. But at certaine times many other popular diseases sprung up, as putrid feavers, fluxes, bloody-fluxes, catarrhes, coughes, phrenzies, squinances, pleurisies, inflammations of the lungs, inflammations of the eyes, apoplexies, lithargies, small pocks and meazels, scabs, carbuncles, and maligne pustles. Wherefore the plague is not alwayes, nor every-where of one and the same kind, but of divers; which is the cause that divers names are imposed upon it, according to the variety of the effects it brings, and symptomes which accompany it, and kinds of putrefaction, and hidden qualities of the Aire.

The Plague is not the definite name of one disease.

They affirme, when the Plague is at hand, that Mushromes grow in greater abundance out of the earth, and upon the surface thereof many kindes of poysonous insects creepe in great numbers, as Spiders, Caterpillers, Butter-flies, Grasshoppers, Beetles, Hornets, Wasps, Flies, Scorpions, Snails, Locusts, Toads, Wormes, and such things as are the off-spring of putrefaction. And also wilde beasts tyred with the vaperous malignity of their Dennes and Caves in the earth, forsake them; and Moles, Toads, Vipers, Snakes, Lizzards, Aspes and Crocodiles are seene to flee away,

What signes in the earth foretell a Plague.

away, and remove their habitations in great troopes. For these, as also some other creatures, have a manifest power by the gift of God, and the instinct of Nature, to presage changes of weather, as raines, showers, and faire weather; and seasons of the yeare, as the Spring, Summer, Autumne, Winter, which they testifie by their singing, chirping, crying, flying, playing, and beating their wings, and such like signes: so also they have a perception of a Plague at hand. And moreover, the carcasses of some of them which tooke lesse heed of themselves, suffocated by the pestiferous poyson of the ill Aire contained in the earth, may bee every where found, not onely in their dens, but also in the plaine fields.

How pestilent vapours may kill plants and trees.

These vapours corrupted not by a simple putrefaction, but an occult malignity, are drawne out of the bowels of the earth into the Aire, by the force of the Sun and Starres, and thence condensed into clouds, which by their falling upon corne, trees and grasse, infect and corrupt all things which the earth produceth, and also kills those creatures which feed upon them; yet brute beasts sooner than men, as which stoope and hold their heads downe towards the ground (the maintainer and breeder of this poyson) that they may get their food from thence. Therefore at such times, skillfull husbandmen, taught by long experience, never drive their Cattell or Sheep to pasture, before that the Sun, by the force of his beames, hath wasted and dissipated into Aire this pestiferous dew hanging and abiding upon boughes and leaves of trees, herbs, corne and fruits.

But on the contrary, that pestilence which proceeds from some maligne quality from above, by reason of evill and certaine conjunction of the Stars, is more hurtfull to men and birds, as those who are neerer to heaven.

CHAP. VI.

By using what cautions in Aire and Diet, one may prevent the Plague.

Change of places the surest prevention of the Plague.



Two things of chief account for prevention.

Diet for prevention of the Plague.

Having declared the signes fore-shewing a Pestilence: now wee must shew by what meanes we may shun the imminent danger thereof, and defend our selves from it. No prevention seemed more certaine to the Ancients, than most speedily to remove into places farre distant from the infected place, and to be most slow in their returne thither againe. But those, who by reason of their businesse or employments, cannot change their habitation, must principally have care of two things: The first is, that they strengthen their bodies, and the principall parts thereof against the daily imminent invasions of the poyson, or the pestiferous and venenate Aire. The other, that they abate the force of it, that it may not imprint its virulency in the body; which may be done by correcting the excesse of the quality inclining towards it, by the opposition of its contrary. For if it bee hotter than is meet, it must bee tempered with cooling things; if too cold, with heating things: yet this will not suffice. For wee ought besides, to amend & purge the corruptions of the venenate malignity diffused through it, by smells and perfumes resisting the poyson thereof. The body will be strengthened and more powerfully resist the infected Aire, if it want excrementitious humours, which may be procured by purging and bleeding, and for the rest a convenient diet appointed, as shunning much variety of meats, and hot and moyst things, and all such which are easily corrupted in the stomacke, and cause obstructions, such as those things which be made by Comfit-makers; we must shun satiety and drunkenness, for both of them weaken the powers, which are preserved by the moderate use of meats of good juice.

Let moderate exercises in a cleare Aire, and free from any venemous tainture, precede your meales.

Let the belly have due evacuation either by Nature or Art.

Let the heart, the seat of life, and the rest of the bowels be strengthened with Cordials and Antidotes applyed and taken (as wee shall hereafter shew) in the forme of epithemes, ointments, emplasters, waters, pills, powders, tablets, opiates, fumigations, and such like.

Make

Make choice of a pure Aire & free from all pollution, & far remote from stinking places, for such is most fit to preserve life, to recreate and repaire the spirits; where as on the contrary, a cloudy or mistie Aire, and such as is infected with grosse and stinking vapours, duls the spirits, dejects the appetite, makes the body faint and ill coloured, oppresseth the heart, and is the breeder of many diseases.

Discommodities or a cloudy or foggy aire.

The Northern wind is healthfull, because it is cold and dry. But on the contrary, the Southerne wind, because it is hot and moyst, weakens the body by sloth or dullness, opens the pores, and makes them pervious to the pestiferous malignity. The Western wind is also unwholesome, because it comes neere to the nature of the Southerne: wherefore the windowes must bee shut up on that side of the house on which they blow, but opened on the North and East side, unless it happen the Plague come from thence.

Why the South wind is pestilent.

Kindle a cleare fire in all the lodging Chambers of the house, and perfume the whole house with Aromatick things, as Frankinsence, Myrrhe, Benzoin, *Ladanum*, *Syrax*, Roses, Myrtle-leaves, Lavender, Rosemary, Sage, Savory, wilde Time, Marjerome, Broome, Pine-apples, pieces of Firre, Juniper berries, Cloves, Perfumes: and let your cloathes be aired in the same.

The efficacy of fire against the Plague.

There be some, who think it a great preservative against the pestilent Aire, to keep a Goat in their houses, because the capacity of the houses, filled with the strong sent which the Goat sends forth, prohibits the entrance of the venomous Aire: which same reason hath place also in sweet smels, and besides, it argues, that such as are hungry are apter to take the Plague, than those who have eaten moderately: for the body is not onely strengthened with meat, but all the passages thereof are filled by the vapours diffused from thence, by which otherwise the infected Aire would finde a more easie entrance to the heart.

Moderate repulsion good for prevention.

Yet the common sort of People yeeld another reason for the Goat, which is, that one ill sent drives away another, as one wedge drives forth another; which calleth to my mind that which is recorded by *Alexander Benedictus*, that there was a Scythian Physician, which caused a Plague, arising from the infection of the Aire, to cease, by causing all the dogs, cats, & such like beasts which were in the City, to be killed, and cast their carcasses up & down the streets, that so by the coming of this new putride vapour as a stranger, the former pestiferous infection, as an old guest, was put out of its Lodging, & so the Plague ceased. For poysons have not onely an antipathy with their Antidotes, but also with some other poysons.

A strange art to drive away the Plague.

Whilest the Plague is hot, it is not good to stirre out of doore before the rising of the Sunne: wherefore wee must have patience, untill hee have cleansed the Aire with the comfortable light of his Beames, and dispersed all the foggy and nocturnal pollutions, which commonly hang in the Aire in dirty, and especially in low places and Vallies.

The antipathy of poysons with poysons.

All publike and great meetings and assemblies must be shunned.

If the Plague begin in Summer, and seeme principally to rage, being helped forward by the summers heat, it is the best to performe a journey begun, or undertaken for performance of necessary affaires, rather upon the night time, than on the day, because the infection takes force, strength and subtilty of substance, by which it may more easily permeate and enter in, by the heat of the Sun; but by night mens bodies are more strong, and all things are more grosse and dense. But you must observe a cleane contrary course if the malignity seeme to borrow strength, and celerity from coldness. But you must alwayes eschew the beames of the Moone, but especially at the full: For then our bodies are more languid and weake, and fuller of excrementitious humours. Even as trees which for that cause must be cut down in their season of the Moone, that is, in the decrease thereof.

Whether in the plague time one must travell by night or by day.

Why the Moone is to be shunned.

After a little gentle walking in your Chamber, you must presently use some means that the principall parts may be strengthened by suscitating the heat & spirits, & that the passages to them may be filled, that so the way may bee shut up from the infection coming from without. Such as by the use of garlick have not their heads troubled, nor their inward parts inflamed, as Countrey people, and such as are used to it, to such there can be no more certaine preservative and antidote against the pestiferous

Garlick good against the Plague

pestiferous

stiferous fogs or mists, and the nocturnall obscurity, than to take it in the morning with a draught of good wine; for it being abundantly diffused presently over all the body, fills up the passages thereof, and strengtheneth it in a moment.

What water to
be made choice
of in the Plague
time.

For water, if the Plague proceed from the tainture of the Aire, wee must wholly shun and avoyd raine-water, because it cannot but bee infected by the contagion of the Aire. Wherefore the water of Springs, and of the deepest Wells are thought best. But if the malignity proceed from the vapours contained in the earth, you must make choice of Raine-water. Yet it is more safe to digest every sort of water by boiling it, and to preferre that water before other, which is pure and cleare to the sight, and without either tast or smell, and which besides suddenly takes the extremest mutation of heat and cold.

CHAP. VII.

Of the Cordiall Remedies by which we may preserve our bodies in feare of the Plague, and cure those already infected therewith.

Aqua theriacalis
good against the
Plague both in-
wardly taken &
outwardly ap-
plied.

Such as cannot eat without much labour, exercise and hunger, and who are no lovers of Break-fasts, having evacuated their excrements, before they goe from home must strengthen the heart with some Antidote against the virulency of the infection. Amongst which *Aqua Theriacalis*, or Treacle-water, two ounces, with the like quantity of Sacke, is much commended being drunke, and rubbing the nostrils, mouth and eares with the same, for the Treacle-water strengthens the heart, expels poyson, and is not onely good for a preservative, but also to cure the disease it selfe: For by sweat it drives forth the poyson contained within. It should be made in June, at which time all simple medicines, by the vitall heat of the Sun, are in their greatestt efficacie.

The composition
thereof.

The composition whereof is thus: Take the roots of Gentian, *Cyperus*, Tormentill, Diptam, or *Fraxinella*, Elecampaine, of each one ounce; the leaves of Mullet, *Carduus Benedictus*, Divels-bit, Burnet, Scabious, Sheepes Sorrell, of each halfe a handfull; of the tops of Rue a litle quantity; Mirtle Berries one ounce; of red Rose leaves, the flowers of Buglosse, Borage, and St. Johns wurt, of each one ounce: let them be all cleansed, dried and macerated for the space of twenty foure hours in one pound of white wine or Malmesey, and of Rose-water or Sorrell water; then let them bee put in a vessell of glasse, and adde thereto of Treacle and Mithridate, of each foure ounces: then distill them in *Balneo Mariae*, and let the distilled water bee received in a glasse Viall, and let there be added thereto of Saffron two drams, of bole Armenick, *Terra Sigillata*, yellow Sanders, shavings of Ivory and Harts-horne, of each halfe an ounce, then let the glasse be well stopped, and set in the Sun for the space of eight or ten daies. Let the prescribed quantity be taken every morning so oft as shall be needfull. It may bee given without hurt to sucking children, and to women great with child. But that it may be the more pleasant, it must bee strained through an Hippocras bag, adding thereto some suger and cinamon.

Some thinke themselves sufficiently defended with a root of Elecampaine, Zedoarie, or Angelica, rowled in their mouth, or chawed betweene their teeth.

Others drinke every morning one dram of the root of Gentian brused, being macerated for the space of one night in two ounces of white-wine.

Others take Worme-wood wine.

Others sup up in a rere egge one dram of *Terra Sigillata*, or of Hartshorne, with a litle Saffron, and drinke two ounces of wine after it.

There be some that doe infuse bole Armenicke, the roots of Gentian, Tormentill, Diptam, the Berries of Juniper, Cloves, Mace, Cinamon, Saffron, and such like, in *Aqua vite* and strong white wine, and so distill it in *Balneo Mariae*.

A Cordiall
water.

This Cordiall water that followeth is of great vertue. Take of the roots of the long and round *Aristolochia*, Tormentill, Diptam, of each three drams, of Zedoarie two drams, *Lignum Aloes*, yellow Saunders, of each one dram, of the leaves of Scordium,

dium, St. Johns.wurt, Sorrell, Rue, Sage, of each halfe an ounce, of Bay and Juniper berries, of each three drams, Citron seeds one dram, Cloves, Mace, Nutmegs, of each two drams, of Mastick, *Olibanum*, bole Armenick, *Terra Sigillata*, shavings of Hartshorne and Ivory, of each one ounce, of Saffron on scruple, of the conserves of Roses, Buglosse flowers, water-lillies, and old Treacle, of each one ounce, of Camphire halfe a dram, of *aqua vite* halfe a pint, of white wine two pints and a half, make thereof a distillation in *Balneo Mariae*. The use of this distilled water is even as Treacle water is.

The Electuary following is very effectuall. Take of the best Treacle three ounces, Juniper berries and Carduus seeds of each one dram and a halfe, of bole Armenicke prepared halfe an ounce, of the powder of the Electuarie *de Gemmis* and *Diamargariton frigidum*, the powder of Hartshorne, and red Corall, of each one dram: mixe them with the syrupe of the rindes and juice of Pome-citrons as much as shall suffice, and make thereof a liquid Electuary in the forme of an Opiate, let them take every morning the quantity of a Filberd, drinking after it two drams of the water of Scabious, Cherryes, *Carduus Benedictus*, and of some such like cordiall things, or of strong wine. A Cordiall electuary.

The following Opiate is also very profitable, which also may be made into Tablets. Take of the roots of Angelica, Gentian, Zedoarie, Elecampaine, of each two drams; of Cytron and Sorrell seeds, of each halfe a dramme; of the dryed rindes of Cytrons, Cinnamon, Bay and Juniper berries, and Saffron, of each one scruple; of conserve of Roses and Buglosse, of each one ounce; and fine hard Sugar as much as is sufficient: make thereof Tablets of the weight of halfe a dram, let him take one of them two houres before meate: or make thereof an Opiate with equall parts of conserves of Buglosse and *Mel Anthosatum*, and so adding all the rest dry and in powder. Or take of the roots of Valerian, Tormentill, Diptam, of the leaves of Rue, of each halfe an ounce; of Saffron, Mace, Nutmegs, of each halfe a dram; of bole Armenick prepared halfe an ounce; of conserve of Roses and syrupe of Lemons as much as will bee sufficient to make thereof an Opiate liquid enough. Or take of the roots of both the *Aristolochia's*, of Gentian, Tormentill, Diptam, of each one dram and an halfe; of Ginger three drams; of the leaves of Rue, Sage, Mints and Pennyroyall, of each two drams; of Bay and Juniper berries, Cytron seeds, of each foure scruples; of Mace, Nutmegs, Cloves, Cinnamon, of each two drams; of *Lignum aloes*, and yellow Saunders, of each one dram; of Male Frankincense, *i. Olibanum*, Masticke, shavings of Hartshorne and Ivory, of each two scruples; of Saffron halfe a dram; of bole Armenicke, *Terra Sigillata*, red Corall, Pearle, of each one dram; of conserves of Roses, Buglosse flowers, water-lillyes and old Treacle, of each one ounce; of loafe sugar one pound and a quarter: a little before the end of the making it up, adde two drams of *Confectio Alkermes*, and of Camphire dissolved in Rose-water one scruple: make thereof an Opiate according to Art, the dose thereof is from halfe a dram to halfe a scruple. Another. Another.

Treacle and Mithridate faithfully compounded, excell all Cordiall medicines, adding for every halfe ounce of each of them, one ounce and a halfe of conserves of Roses, or of Buglosse, or of Violets, and three drams of bole Armenicke prepared: Of these being mixed with stirring, and incorporated together, make a conserve: It must be taken in the morning the quantity of a Filberd: You must choose that Treacle that is not lesse than foure years old, nor above twelve: that which is somewhat new, is judged to be most meet for cholerick persons, but that which is old for flegmatick and old men. For at the beginning the strength of the *Opium* that enters into the composition thereof, remaines in its full vertue for a yeare: but afterwards the more years old it waxeth, the strength thereof is more abolished, so that at length the whole composition becommeth very hot.

The confection of *Alkermes* is very effectuall both for a preservative against this disease, and also for the cure.

The quantity of a Filberd of Rubarbe, with one Clove chawed or rowled in the mouth, is supposed to repell the comming of the pestilent Aire: as also this composition following.

Take

A^r confection to
be taken in the
morning against
the pestilent
Aire.

Take of preserved Citron and Orange pils, of each one dram; of conserve of Roses, and of the roots of Buglosse, of each three drammes; of Citron seeds halfe an ounce; of Annise seeds and Fennell seeds, of each one dram; of Angelica roots four scruples; sugar of Roses as much as sufficeth: Make a Confection, and cover it with leaves of Gold, and take a little of it out of a spoone before you goe abroad every morning.

A March-pane.

Or take of Pine. Apple kernels, and Fistick nuts, infused for the space of sixe hours in the water of Scabious and Roses, of each two ounces; of Almonds blanched in the fore-named waters halfe a pound: of preserved Citron and Orange pils, of each one dram and a halfe: of Angelica roots foure scruples: make them according to art, unto the forme of March-pane, or of any other such like confection: and hold a little piece thereof often in your mouth.

The Tablets following are most effectuell in such a case. Take of the roots of Diptam, Tormentill, Valerian, Elecampaine, Eringoes, of each halfe a dram; of bole Armenick, *Terra Sigillata*, of each one scruple; of Camphire, Cinnamon, Sorrell seeds, and Zedoarie, of each one scruple; of the *Species* of the Eleduarie *Diamargariton Frigidum*, two scruples; of conserve of Roses, Buglosse, preserved Citron pils, Mithridate, Treacle, of each one dram; of fine sugar dissolved in Scabious and Carduus water, as much as shall suffice: Make thereof Tablets of the weight of a dram or half a dram: take them in the morning before you ear.

Pils of *Raffus*.

The pils of *Raffus* are accounted most effectuell preservatives, so that *Raffus* himselfe saith, that he never knew any to be infected that used them: the composition of them is thus.

Take of the best Aloes halfe a dram; of Gumme *Ammoniacum* two drammes; of Myrrhe two drams and an halfe; of Masticke two drams; of Saffron seven graines: Put them all together, and incorporate them with the juice of Citrons, or the syrupe of Lemons, and make thereof a masse, and let it bee kept in leather: Let the patient take the weight of half a dram every morning two or three hours before meat, & let him drinke the water of Sorrell after it, which through its tartnesse, and the thinnesse of its parts, doth infringe the force and power of the malignity or putrefaction: For experience hath taught us, that Sorrell being eaten or chawed in the mouth, doth make the pricking of Scorpions unhurtfull. And for those ingredients which do enter into the composition of those pils, Aloes doth cleanse and purge, Myrrhe resists putrefaction, Mastick strengthens, Saffron exhilerates and makes lively the spirits that governe the body, especially the vitall and animall.

Other pils.

Those pils that follow are also much approved. Take of Aloes one ounce; of Myrrhe halfe an ounce, of Saffron one scruple, of Agarick in Trochiscs, two drams, of Rubarbe in powder one dram, of Cinnamon two scruples, of Masticke one dram and a half, of Citron seeds twelve grains: Powder them all as is requisite; and make thereof a masse with the syrupe of Maiden-haire: Let it be used as afore-said.

If the masse begin to waxe hard, the pils that must presently be taken, must be molified with the syrupe of Lemons.

Other pils.

Take of washed Aloes two ounces, of Saffron one dram, of Myrrhe half an ounce, of *Ammoniacum* dissolved in white wine, one ounce, of hony of Roses, Zedoarie, red Saunders, of each one dram, of bole Armenick prepared two drams, of red Coral half an ounce, of Camphire halfe a scruple: make thereof pils according to Art. But those that are subject or apt to the hæmorrhoids ought not at all, or very seldome to use those kindes of pils that doe receive much Aloes.

They say that King *Mithridates* affirmed by his own writing, that whosoever took the quantity of an hassell Nut of the preservative following, and dranke a little wine after it, should be free from poyson that day. Take two Wall-nuts, those that be very dry, two figs, twenty leaves of Rue, and three grains of salt: beat them, and incorporate them together, and let them be used as is aforesaid.

This remedy is also said to be profitable for those that are bitten or stung by some venomous beast, and for this onely, because it hath Rue, in the composition thereof. But you must forbid women that are with child the use of this medicine, for Rue is hot and dry in the third degree, and therefore it is said to purge the womb, and pro-

voke

vake the flowers, whereby the nourishment is drawne away from the child. Of such variety of medicines, every one may make choice of that that is most agreeable to his taste, and as much thereof as shall be sufficient.

CHAP. VIII.

Of locall medicines to be applied outwardly.

Hose medicines that have proper and excellent vertues against the pestilence, are not to bee neglected to bee applied outwardly, or carried in the hand. And such are all aromaticall, astringent, or spirituous things, which therefore are endued with vertue to repell the venemous and pestiferous aire from comming and entring into the body, and to strengthen the heart and the braine. Of this kind are Rue, Balm, Rosemary, *Scordium*, Sage, Worme-wood, Cloves, Nutmegs, Saffron, the roots of Angelica, and Lovage, and such like, which must bee macerated one night in sharpe Vinegar and *Aqua vita*, and then tyed in a knot as bigge as an egge: or rather let it be carried in a sponge, made wet or soaked in the said infusion. For there is nothing that doth sooner and better hold the spirituous vertue and strength of aromaticke things, than a sponge. Wherefore it is of principall use either to keep or hold sweet things to the nose, or to apply Epithemes and Fomentations to the heart.

Of what nature
the medicines
outwardly used
ought to be.

Those sweet things ought to be hot or cold, as the season of the yeere, and kinde of the pestilence is. As for example, in the Summer you ought to infuse and macerate Cinamon and Cloves beaten together, with a little Saffron in equall parts, of Vinegar of Roses, and Rose water, into which you must dippe a sponge, which rowled in a faire linnen cloath, you may carry in your hand, and often smell to.

Take of Wormewood halfe a handfull, ten Cloves, of the roots of Gentian and Angelica, of each two drammes, of Vinegar and Rose water, of each two ounces, of Treacle and Mithridate, of each one dramme, beat and mixe them all well together, and let a sponge be dipped therein, and used as above-said. They may also bee enclosed in boxes made of sweet wood, as of Juniper, Cedar, or Cypresse, and so carried for the same purpose.

But there is nothing more easie to be carried than Pomanders: the form of which is thus. Take of yellow Saunders, Mace, Citron pills, Rose and Mirtle leaves, of each two drammes, of Benzion, Ladanum, Storax, of each halfe a dramme, of Cinamon, and Saffron, of each two Scruples, of Camphire and Amber Greece, of each one scruple, of Muske, three graines. Make thereof a Pomander, with Rose water, with the infusion of Tragacanth. Or take red Rose leaves, the flowers of Water-lillies, and Violets, of each one ounce, of the three Saunders, Coriander seeds, Citron pills, of each halfe an ounce, of Camphire, one dramme, let them all bee made into powder, and with Water of Roses and Tragacanth make a pomander.

Pomanders.

In the winter it is to be made thus: take of Storax, Benzoin, of each one dram and a half, of Musk, half a Scruple, of Cloves, Lavander, and *Cyperus*, of each two drams; of the root of Orris, *i. Flower-de-Luce*, and *Calamus aromaticus*, of each two drams and a half, of Amber Greece, three drams; of gum Tragacanth dissolved in Rose water & *Aqua vita*, as much as shall suffice: make thereof a Pomander.

Sweet pouders.

And for the same purpose you may also use to carry about with you sweet pouders, made of Amber Greece, Storax, Orris, Nutmegs, Cinamon, Mace, Cloves, Saffron, Benzoin, Muske, Camphire, Roses, Violets, *Juncus odoratus*, Marjoram, & such like, of which being mixed together, Pouders may be compounded & made.

Take of the rootes of Orris two drams, of *Cyperus*, *Calamus Aromaticus*, red Roses, of each halfe an ounce, of Cloves halfe a dramme, of Storax one dramme, of Muske eight graines: mixe them, and make a powder for a bagge: or take the rootes of Orris two ounces, red Rose leaves, white Saunders, Storax, of each one ounce, of *Cyperus* one dram, of *Calamus Aromaticus*, one ounce, of Marjoram, halfe an ounce, of Cloves, three drammes, of Lavander, halfe a dramme, of Coriander seedes two drammes, of good Muske, halfe a scruple, of Ladanum and Benzoin, of each a dram, of Nutmegs and Cinamon, of each two drammes: Make thereof a fine powder, and sew it in a bag.

It

Bagges.

It will be very convenient also to apply to the region of the heart, a bagge filled with yellow Saunders, Mace, Cloves, Cinnamon, Saffron, and Treacle shaken together, and incorporated, and sprinckled over with strong vinegar and Rose water in Summer, and with strong wine and Muskedine in the Winter.

These sweet Aromaticke things that are so full of spirits, smelling sweetly and strongly, have admirable vertues to strengthen the principall parts of the body, and to stirre up the expulsive faculty to expell the poyson.

Unfavorly
things to bee
eschewed.

Contrarie-wise, those that are stinking and unsavory, procure a desire to vomit, and dissolution of the powers, by which it is manifest how foolish and absurd their perswasion is, that counsaile such as are in a pestilent constitution of the aire, to receive and take in the stinking and unsavoury vapours of sinkes and privies, and that especially in the morning.

But it will not suffice to carry those preservatives alone, without the use of any other thing, but it will be also very profitable to wash all the whole body in Vinegar of the decoction of Juniper & Bay berries, the roots of Gentian, Marigolds, S. Johns Wort, and such like, with Treacle or Mithridate also dissolved in it. For vinegar is an enemy to all poysons in general, whether they be hot or cold: for it resisteth & hindereth putrefaction, because it is cold & dry: therefore in this, inanimate bodies, as flesh, Herbes, fruits, and many other such like things, may be kept a long time without putrefaction. Neither is it to be feared, that it should obstruct the pores, by reason of its coldnesse, if the body be bathed in it: for it is of subtile parts, and the spices boyled in it, have vertue to open.

Whosoever accounteth it hurtfull to wash his whole body therewith, let him wash onely his arme-holes, the region of his heart, his temples, groines, parts of generation, as having great and marvellous sympathy with the principall and noble parts.

An unguent.

If any mislike bathing, let him annoint himself with the following unguent. Take oyle of Roses, four ounces; oyle of Spike, two ounces; of the pouders of Cinamon and Cloves, of each one ounce and a halfe; of Benzoin, halfe an ounce; of Muske, fixe graines; of Treacle, halfe a dramme; of Venice Turpentine, one dramme and a halfe; of Waxe, as much as shall suffice: make thereof a soft unguent.

You may also drop a few drops of oile of Mastick, of Sage, or of Cloves, and such like, into the eares, with a little Civet or Muske.

CHAP. IX.

Of other things to be observed for prevention, in feare of the Plague.

Why venery is
to be shunned.

VENERY is chiefly to be eschewed, for by it the powers are debilitated, the spirits dissipated, and the breathing places of the body diminished, and lastly, all the strength of nature weakened. A sedentary life is to be shunned, as also excesse in diet, for hence proceeds obstruction, the corruption of the juices, and preparation of the body to putrefaction and the pestilence.

Running ulcers
good in time of
pestilence.

Women must be very carefull that they have their courses duely, for stopping besides the custome, they easily acquire corruption, and draw by contagion the rest of the humours into their society. Such as have fistulous, or otherwise old ulcers, must not heale them up in a pestilent season, for it is then more convenient rather to make new ones, and these in convenient and declining places; that as by these channels, the sinke of the humors of the body may be emptied.

Places to be
shunned in
time of plague.

The Hæmorrhoids, bleedings, & other the like accustomed evacuations, must not be stopped, unlesse they exceed measure. Moreover, they must at such times take heed that they touch or handle not any of these things wherein the seedes or fuell of the pestilence may lye hid, such as are, hempe, flaxe, quilts and coverings wherein such as have had the plague, have laid; skins and all leathern things, hangings and cloaths. You must dwell farre from church-yards, especially from those wherein the corps of such as have died of the plague, are not buried deep in the ground, as in the church

of

of the *Innocents* in *Paris*, in which place by the same reason it sundry times happens that the buried bodies are plucked up, rent and torne by dogs. Also let them dwell farre from places of execution, shambles of flesh and fish, from tanne-houses, diers, tallow-chandlers, cloth-dressers, farriers, skinners, and from the places wherein metals are cast or wrought. The filth and dung, especially of Swine, Fowles, standing and muddy waters, and lastly all things of the like evill smell, must be faire remote from your habitation; the belly must not bee emptied into those places, into which the excrements of such as have the plague are cast. The company of such as usually visite those sicke of the plague, must be eschewed, as of Physitians, Apothecaries, Surgeons, Nurse-Keepers, Grave-makers and Bearers. For though they have not the plague, yet coming forth of a pestilent place, they may carry with them lying hid in their garments, the seedes thereof. You may gather this by such as have for a little while stayed in a perfumers shoppe, for the perfume diffused in the aire, bestowes the smel upon the garments of such persons, so that gone from thence, such as meet them, will judge them to carry perfumes with them. They shall also shunne long watchings, sound sleeping, all passions of the minde, especially anger, hunger, thirst, journeying in the sun, for that hath oft-times occasioned a diary feaver, which hath not seldome beene seene to turne into a pestilent one, for by dilating the pores of the skinne, they have given entrance to the pestilent aire, which by that meanes hath easily taken hold of the humour disposed to putrefaction.

What company
to be avoided.

You must doe
nothing in a
pestilent season
whereby you
may grow too
hot.

CHAP. X.

Of the office of Magistrates in the time of the Plague.

Magistrates ought to have a speciall care that no filth be heaped up, either in private or publike places: let all things bee kept near in every house, and let all the streets be kept cleane, the dung and filth bee carried forth of the city, as also the dead carcasses of killed dogs and cats, for because they oft-times licke and devoure the excrements of such as have the Sicknesse, therefore they may by their familiar entry into sound houses, there propagate the plague. Wherefore they must either be driven forth of the city, or killed, and so be carryed forth and buried deepe in the ground. Wells, springs, and rivers themselves, must bee freed and cleansed from all impurity. Care must bee had that musty corne, tainted flesh, nor stinking fish be not set to sale. Publike bathes and hot-houses must bee prohibited, for that in these, mens bodies are weakened, and made more yeelding and pervious to the pestiferous aire. They shall commit the cure of such as have the plague, to learned, skillfull and honest Physitians, Apothecaries, and Surgeons.

Why dogs and
cats must be
killed in a
plague time.

Why Bathes
and hot-houses
are not then to
be allowed.

Such as are knowne to have the plague, shall bee separated from such as are free therefrom, and bee sent to such fit places as shall bee provided for them; for this is better and more humanely done, than to shut up every man in his owne house. They shall provide and foresee that the household-stuffe of such as have the plague bee not set to sale. They shall set signes and noted markes upon the houses seized upon by this disease, lest they should unawares run into danger. Wherefore to the same purpose they shall procure that the Surgeons & others that visite the sicke of the plague may be known by some conspicuous marke, that such as passe by them may be admonished of the danger; they shall also take care that the bodies of the dead be buried as speedily as may be. For they sooner & more grievously putrefie in a short time, than the bodies of others of what death soever they die. Wherefore, neither birds nor ravenous beasts dare once touch their bodies, though unburied, for by tasting them they should quickly come to their deaths. The keepers of the gates of the city shall be admonished, that they take speciall care that such as are infected, or come from a visited place, doe not enter into the city, for from one, the evill may come to spread it selfe further, for one sparke may set a whole city on fire, and one scabby sheepe infect a whole flock. And because there is nothing which may more perfectly purge

Such as dye of
the plague doe
quickly putrefie

the aire, and cleanse it from all manner of noysomnesse and infection, than fire, they shall command that there be kindled, and perpetually kept burning fires, made with odoriferous and strong smelling things, as Juniper, Turpentine, Broome, and the like.

Lib. 2. de occult
nat. mirac.

The villany of
some base peo-
ple.

In stead hereof *Levinus* tells that the souldiers of the Garrison of *Torney* used in a Plaguetime to discharge their Cannons laded onely with Powder, turning their mouths upon the citty, and that morning and evening, that by the vehemency of the moved aire, the pestiferous fogges might bee chased away, and by the heate of the burned powder, the venerate and noysome quality of the aire might bee amended. Lastly, I judge it fit to admonish Magistrates that they have their eies and mindes attentive upon a murderous and impious kinde of bearers and nurse-keepers, which allured with a desire of gain (which whilest the plague reignes, they get abundantly) anoint the walls, doores, thresholds, knockers of gates and lockes with the filth and ointments taken from such as have the plague, that the plague within a while after seazing upon these also, the masters of them flying away, and the family dispersed, they may there reigne alone, and freely and without punishment carry thence what they please, oft-times strangling such as lye ready to dy, lest recovering, they might be their accusers. This I remember happened at *Lyons*, Anno Dom. 1565.

CHAP. XI.

What caution must be used in chusing Physitians, Apothecaries and Surgeons, who may have care of such as are taken with the Plague.



IT is the part of Magistrates in the so great necessity of the afflicted common-wealth, to appoint learned, skilfull, and honest Physitians, Surgeons, and Apothecaries, and such as have more regard to the law of God than to gaine, to have the care & cure of such as are visited. But principally let them not take Surgeons and Apothecaries called by proclamation with sound of trumpet, that if they will take this charge, they shall become free without examination or reward. But let them rather be allured by gifts and honest rewards, not only then when as necessity urgeth, but also after the plague is over. For such servant Surgeons and Apothecaries as are called by proclamation, so to gaine freedome, are most commonly unskilfull and unexperienced Dunces, who, conscious of their owne ignorance, and fearing to undergoe the examination of the Masters of their Companies, refuse no hazzard, however dangerous, with desire to obtaine their freedome.

It is farre worse and more dangerous to fall into the hands of such, than into the hands of thieves and murderers, for these, by providence or strength, wee may chance to escape; but wee seeke for and embrace the other, and having found them, lay our throats bare unto them, so by their unskilfulnesse to be butchered. Certainly by the fault of the times, and the neglect of Magistrates, it is almost come to this passe, that if any honest and learned Physitians and Surgeons shall undertake this cure, they are commonly forced thereto by the Magistrate for feare of banishment or fining. Therefore because they doe it against their wills, they shew themselves lesse vigilant, cheerefull and painefull about the sicke. They come unwillingly and compelled hereto, because by the memory of the forepast time, they sufficiently know, how sordide and basely Magistrates, when the plague hath beene overpast, have bin in paying the promised reward to men of their condition, who have stoutly run into danger; for thence it happens that during the rest of their lives they may sit idle at home, for that they are infamous and feared by the people onely for this, that a while agoe they visited such as had the plague. Therefore I would have Magistrates prudent, faithfull, and free in choosung honest, learned and skilfull men, who may undergoe this so difficult and dangerous a charge.

CHAP. XII.

How such as undertake the cure of the Plague ought to arme themselves.



first they must thinke and hold for certaine, that they are not called to this office by men, but by God, so directing the counsels and actions of men as he thinketh fit. Therefore they shall confidently enter into the cure thereof, for that our lot, life and death are in the hands of the Lord: but notwithstanding they ought not to neglect remedies, which are given to men for prevention, lest by neglecting the gifts of God, they may seem to neglect him also that is the giver of so many good and excellent benefits. Therefore first let them by purging and bleeding evacuate the humours subject to putrefaction, and to conceive the seeds of the pestilence. Let them make two fontanella's by application of Cauteries to bee as rivelets to evacuate the excrementitious humours which are daily by little and little heaped up in us; let one of them bee in the right arme a little below the muscle *Epomis*, the other the space of three fingers under the knee on the inside of the left legge. This is found by experience a very certaine meanes of prevention. Let them wash their whole bodies with the following lotion. *Rx. aqua ros. aceti rosati, aut sambucini, vini albi aut malvatici, an. ℥vi. rad. enula camp. angelica, gentian. bistorta, Zedoar. an. ℥iii. baccar. juniperi, & hedera, an. ℥ii. salvia, rorismar. absinth. ruta, an. m. i. corticis citri, ℥ss. theriaca & mithridat. an. ℥i. conuassanda conuassent. bulliant lento igni, & seruentur ad usum ante commemoratum.* The Epithemes, unguents and bags formerly described shall be applyed to the region of the heart. I have read it noted by *John Baptist Theodosius*, that amongst other things, Arsenick may be profitably applyed to the region of the heart, that so it may by little and little accustome it selfe to poysons, that afterwards it may bee lesse harmed by their incursion, first making their assault upon it.

Our lots are in the hands of the Lord.

Where to make illues in the time of the Plague.

Cap 8.

Epist. 2.

Let their garments be made of Chamelet, Dutch sarge, Satin, Taffaty, or the like. Or else if they cannot of these, let them be of some other handsome stuffe, but not of cloth, frieze or the like, that may take the venenate Aire, and carry it with them to the infection of the sound. They shall oft-times change their clothes, shirts and other linnen, and perfume them with aromaticke things; let them warily approach to the sicke, more warily speake unto him, with their faces looking away from him, rather than towards him, so that they may not receive the breath of his mouth, neither the vapour nor smell of any of his excrements.

What to wear.

How to visite your patients.

When as I upon a time being called to visite one that lay sicke of the plague, came too neare and heedlesly to him, and presently by sudden casting off the cloathes, laid him bare, that so I might the better view a *Bubo* that hee had in his right groine, and two Carbuncles that were on his belly, then presently a thick, filthy and putride vapour arising from the broken abscesse of the Carbuncle, as out of a raked puddle, ascended by my nostrils to my braine, whereupon I fainted and fell down senselesse upon the ground; raised up a little after, all things seemed to me to run round; and I was ready to fall againe, but that I stayed my selfe by taking hold of the bed poste. But one thing comforted mee, that there appeared no signes that my heart was affected, either by paine or panting, or the strong and contumacious failing of my powers. An argument that the animall spirits were only dissipated by a venenate vapour, and that the substance of the heart was no way wronged, was a sneezing which tooke me so violently, that I sneezed ten times, and then fell a bleeding at the nose, which excretion, I beleeve freed me from all the impression of the malignity. Let others warned by this mine example, learne to be wiser and more wary in this case, lest they come to a worse mishap than befell mee.

A history.

CHAP. XIII.

Of the signes of such as are infected with the Plague.

Whence cer-
tain signes of the
Plague may be
taken,



The cause of
vomiting in
such as have the
Plague.

Their looks are
suddenly chan-
ged.

Why some that
are taken with
the plague are
sleepy.

Why their u-
rines are like
those that are
sound.

WEE must not stay so long before wee pronounce one to have the Plague, untill there be paine and a tumour under his arme-holes, or in his groine, or spots (vulgarly called Tokens) appeare over all the body, or carbuncles arise: for many dye through the venenate malignity, before these signes appeare. Wherefore the chiefeft and trueft signes of this disease are to be taken from the heart, being the mansion of life, which chiefly and first of all is wont to be assailed by the force of the poison. Therefore they that are infected with the Pestilence, are vexed with often swoonings and fainting; their pulse is feebler and slower than others, but sometimes more frequent, but that is specially in the night season; they feele prickings over all their body, as if it were the pricking of needles; but their nostrils doe itch especially by occasion of the maligne vapours rising upwards from the lower and inner, into the upper parts, their breast burneth; their heart beateth with paine under the left dug, difficulty of taking breath, Ptifficke, Cough, paine of the heart, and such an elation or puffing up of the *Hypochondria* or sides of the Belly, distended with the abundance of vapours raised by the force of the feaverish heat, that the Patient will in a manner seeme to have the Timpany. They are molested with a desire to vomit, and oftentimes with much and painfull vomiting, wherein green and black matter is seen, & alwaies of divers colours, answering in proportion to the excrements of the lower parts, the stomach being drawn into a consent with the heart, by reason of the vicinity and communion of the vessels; oftentimes blood alone, & that pure, is excluded & cast up in vomiting; and it is not only cast up by vomiting out of the stomach, but also very often out of the nostrils, fundament, and in women out of the wombe; the inward parts are often burned, and the outward parts are stiffe with cold, the whole heat of the Patient being drawn violently inward, after the manner of a Cupping-glasse, by the strong burning of the inner parts; then the eye-lids waxe blew, as it were through some contusion, all the whole face hath a horrid aspect, and as it were the colour of lead, the eies are burning red, & as it were, swoln or puffed up with blood, or any other humour, shed teares; and to conclude, the whole habit of the body is somewhat changed and turned yellow.

Many have a burning feaver, which doth shew it selfe by the Patients ulcerated jawes, unquenchable thirst, dryness and blackness of the tongue, and it causeth such a phrensie by inflaming the braine, that the patients running naked out of their beds, seeke to throw themselves out of windowes into the pits and rivers that are at hand. In some the joynts of the body are so weakned, that they cannot goe nor stand, from the beginning they are as it were buried in a long swoone and deepe sleep, by reason that the feaver sendeth up to the braine the grosse vapours from the crude and cold humours, as it were from greene Wood newly kindled to make a fire.

Such sleeping doth hold him especially while the matter of the sore or Carbuncle is drawne together, and beginneth to come to suppuration. Oftentimes when they are awaked out of sleepe, there doe spots and markes appeare dispersed over the skin, with a stinking sweat. But if those vapours be sharpe that are stirred up unto the head, in stead of sleepe they cause great waking, and alwayes there is much diversitie of accidents in the urine of those that are infected with the Plague, by reason of the divers temperature and condition of bodies: neither is the urine at all times, and in all men of the same consistence and colour: For sometimes they are like unto the urine of those that are sound and in health, that is to say, laudable in colour and substance, because that when the heart is affected by the venomous Aire, that entreth in unto it, the spirits are more greatly grieved and molested than the humours: but those, i. the spirits, are infected and corrupted when these do begin to corrupt.

But Urines onely shew the dispositions of the humours or parts in which they are made, collected together, and through which they passe.

This reason seemeth truer to methan theirs which say, that nature terrefied with the malignity of the poyson avoyds contention, and doth not resist or labour to digest the matter that causeth the disease.

Many have their appetites so overthrowne, that they can abstaine from meat for the space of three dayes together.

And to conclude, the variety of accidents is almost infinite, which appear & spring up in this kinde of disease, by reason of the diversify of the poyson, and conditio of the bodies and grieved parts : but they doe not all appeare in each man, but some in one, and some in another.

CHAP. XIII.

What signes in the Plague are mortall.

IT is a most deadly signe in the Pestilence, to have a continuall and burning Feaver, to have the tongue dry, rough, and black, to breathe with difficulty, and to draw in a great quantity of breath, but breathe out little; to talke idely; to have phrensie and madnesse together, with unquenchable thirst and great watching; to have Convulsions, the Hicket, heart-beating, and to swoone very often and vehemently; further, tossing and turning in the bed, with a loathing of meats, and daily vomits of a greene, blacke and bloody colour; and the face pale, blacke, of a horrid and cruell aspect, bedewed with a cold sweat, are very mortall signes.

There are some which at the very beginning have ulcerous and painefull wearinesse, pricking under the skin, with great torment of paine; the eyes looke cruelly and staringly, the voyce waxeth hoarse, the tongue rough and sturring, and the understanding decaying, the Patient uttereth and talketh of frivolous things. Truly those are very dangerously sicke, no otherwise than those whose urine is pale, black, and troubled like unto the urine of carriage beasts; or Lye, with divers coloured clouds or contents, as blew, greene, black, fatty and oylie, as also resembling in shew a Spiders Web, with a round body swimming on the top.

An ulcerous & painefull wearinesse from the beginning sheweth the Plague to be deadly.

If the flesh of the carbuncle be dry and blacke, as it were seared with a hot iron, if the flesh about it be blacke and blew, if the matter doe flow back, and turne in, if they have a laske with greatly stinking, liquid, thin, clammy, blacke, greene or blewish ordure; if they avoyd wormes by reason of the great corruption of the humours, and yet for all this the patient is never the better; if the eyes waxe often dim, if the nostrils bee contracted or drawne together, if they have a grievous crampe, the mouth bee drawne aside, the muscles of the face being drawn or contracted equally or unequally; if the nailes be blacke; if they be often troubled with the Hicket, or have a Convulsion and resolution over all the body, then you may certainly prognosticate that death is at hand, and you may use Cordiall medicines onely, but it is too late to purge or let blood.

CHAP. XV.

Signes of the Plague comming by contagion of the Aire without any fault of the humours.

YOU shall understand that the Pestilence proceeds from the corruption of the aire, if it be very contagious, and disperse it selfe into sundry places in a moment. If it kill quickly and many, so that whilest sundry persons goe about their usuall businesse, walke in the places of common resort and through the streets, they suddenly fall downe and dye, no signe of the disease or harme appearing, nor any paine oppressing them; for the malignity of the corrupt Aire is quick and very speedy in infecting our spirits, overthrowing

the strength of the heart and killing the patient. The patients are not troubled with great agitation, because the spirits dissipated by the rapid malignity of the poyson, cannot endure that labour; besides they are taken with frequent swooning, few of them have Bubo's, few have Blains come forth; and by the same reason their urines are like to those of sound men.

CHAP. XVI.

Signes of the Plague drawne into the body by the fault and putrefaction of humours.



Signes of choler.

Formerly we have reckoned up the causes of the corruption of humours from plenitude, obstruction, distemper, and the ill juice of meats. Now must we deliver the signes of each corrupt humour which reignes in us, that it may be reduced to soundnesse and perfection of nature by the opposition of its contrary, or else bee evacuated by physick. Therefore if the body be more yellow than usuall, it is a signe of choler offending in quantity and quality. If more black, then of melancholy; if more pale, then of phlegme; if more red, with the veines swolne up and full, then of blood. Also the colour of the rising blaines, tumours and spots, expresse the colour of the predominant humour, as also the excrements cast forth by vomit, stooles and otherwise; the heavinesse and cheerfulness of the affected body; the manner of the present feaver; the time of the year, age, region, diet. Such things as have a cutting, penetrating, attenuating, and cleansing faculty, take away obstruction. By meanes of obstruction feavers oft-times accompany the Plague, and these not onely continuall, but also intermitting, like tertians or quartaines. Therefore that Plague that is fixed in the infection or corruption of a cholericke humour, shewes it selfe by the forementioned signes of predominating choler, to wit, the heate of the skin, blaines and excrements, as also in the quicknesse of killing, and vehemency of the symptomes, bitterness of the mouth, a painefull and continuall endeavour of going to stool, by reason of the acrimony of choler stimulating and raking the gurs in the passage forth. That which resides in the corrupt substance of grosse humours, as of blood, sheweth it selfe by many and plentiful sweats, by a scowring, by which are avoyded many and various humours; and oft-times also bloody matter that proceeds from corrupt phlegme, it invades with more sound sleep, & a causeless weariness of all the members; when they are awakened out of their sleepe, they are not seldome troubled with a trembling over all their joints, the entrance and way of the spirits into the members being obstructed by the grosse-nesse of the humours. That which is seated in the corruption of a melancholy humour, is accompanied with heavinesse and paine of the head, much pensivenesse, a deep and small pulse. But the most certaine signe of the Plague residing in the corruption of the humours, is to bee taken from the urine. For the signes of the vitiated humours cannot but shew themselves in the urines: therefore troubled urines, and such as are like those of carriage beasts, as also blacke and greene, give certaine notice thereof. But some are much troubled with thirst, others not at all, because choler or Phlegme sometimes onely putrefie in the stomacke or orifice of the ventricle, sometimes besides they will weaken the government of the naturall faculties of the part, as of the appetite. But if the feaver happen by the default and infection both of the Aire and Humours, then will there bee a great confusion of the forementioned signes and symptomes.

When the urine is to be looked upon.

Why some are much troubled with thirst, others not at all.

CHAP. XVII.

Of the Prognostication that is to be instituted in the Plague.

YOU may well fore-tell the future motions and events of diseases, when you thoroughly know the nature of the disease, and accidents thereof, and the condition, function, and excellency of the body and grieved parts : Although that this may bee spoken in generall, That there is no certaine prediction in pestilent diseases, either to health or death, for they have very un-constant motions, sometimes swift and quick, sometimes slow, and sometimes choaking or suffocating in a moment, while one breathes in the venemous Aire, as hee is going about any of his necessary affaires, having pustles rising in the skin with sharpe pain, and as though the whole body were pricked all over with needles, or the stings of Bees. Which I have seene with mine eyes in the Plague that was at Lyons when Charles the French King lay there. It many times commeth to pass that the accidents that were very vehement and raging a little before, are suddenly asswaged, and the patients doe thinke themselves better, or almost perfectly sound. Which happened to Mary one of the Queene Mother her Mayds, in that notable pestilent constitution of the Aire, that yeare when Charles the French King lay at the Castle of Rossillon : For when she was infected, a great tumour or *Bubo* arose in her groine, and suddenly it went in againe, so that the third day of her sicknesse, she said she was without any griefe or disease at all, but that shee was somewhat troubled with a difficulty of making water ; and I thinke it was because the bladder was enflamed by the reflux of the matter ; but shee was sound in mind and body, and walked up and downe the Chamber on the same day that she died. The strangenesse of which thing made the King so fearfull, that he hastied to depart thence.

No certain prediction in the Plague.

A history.

Although this disease doth spare no man, of what age, temperature, complexion, diet and condition soever, yet it assaulteth young men that are cholericke and sanguine, more often than old men that are cold and dry, in whom the moysture that is the nourisher of putrefaction by reason of their age is consumed, and the wayes, passages and pores of the skin, whereby the venemous Aire should enter and pierce in, are more strait and narrow. And moreover, because old men doe alwayes stay at home, but young men for their necessary businesse, and also for their delight and pleasure, are alwayes abroad in the day time, in the Aire, where-hence the pollution of the pestilence commeth more often.

Why young men sooner take the Plague than old.

That pestilence that comes by the corruption of the humours, is not so contagious as that which commeth by the default of the Aire. But those that are phlegmatick and melancholy, are most commonly grieved with that kinde of pestilence, because in them the humours are more clammy and grosse, and their bodies more cold and lesse perspirable, for which causes the humours sooner and more speedily putrefie.

What Plague most contagious.

Men that are of an ill juice are also most apt to this kinde of pestilence, for in the naughty quality of the juice there is a great preparation of the humours unto putrefaction : You may know it by this, that when the pestilence raigneth, there are no other diseases among the common people, which have their original of any ill juice, but they all degenerate into the Plague. Therefore when they begin to appeare and wander up and downe, it is a token that the pestilence will shortly cease, or is almost at an end.

But here also I would have you to understand those to bee of an ill juice, which have no pores in their skin, by which, as it were by rivers, the evill juice which is contrary to nature, may be evacuated and purged. And I have noted and observed, that those are lesse in danger of the Pestilence which have cancerous ulcers and stinking sores in their noses, and such as infected with the French Pocks, have by reason thereof, tumours and rotten ulcers, or have the Kings evill running upon them, the Leprosie or the Scab : and to conclude, all those that have fistulous and running ulcers in their bodies.

Who least subject to take the Plague.

It think

I thinke those that have quartaine Feavers are the better priviledged for the same, because that by the Fit causing sweat, that commeth every fourth day, they avoyd much of the evill juice that was engendered.

This is more like to bee true, than to thinke that the poyson that commeth from without, may be driven away by that which lurketh within.

Who subject thereto.

Contrariwise, women that are great with child, as I have noted, because they have much ill juice, being prohibited from their accustomed evacuations, are very apt to take this disease, and do seldome recover after they are infected.

Signes that the disease is incurable.

Blacke or blew impostumes, and spots and pustles of the same colour, dispersed over the skin, argue that the disease is altogether incurable and mortall.

A good signe.

When the swelling or sore goeth or commeth before the feaver, it is a good signe, for it declareth that the malignity is very weak and feeble, and that nature hath overcome it, which of it selfe is able to drive so great portion thereof from the inner parts.

A deadly signe.

But if the sore or tumour come after the feaver, it is a mortall and deadly signe, for it is certaine that it commeth of the venemous matter not translated, but dispersed, not by the victory of nature, but through the multitude of the matter, with the weight whereof nature is overcome.

When the Moone decreaseth, those that are infected with the Pestilence are in great doubt and danger of death, because then the humours that were collected and gathered together before the full of the Moone, through delay and abundance, do swell the more, and the faculties by which the body is governed, become more weake and feeble, because of the imbecility of the native heate, which before was nourished and augmented by the light, and so consequently by the heat of the full Moon: For as it is noted by *Aristotle*, the wainings of the Moone are more cold and weak: and thence it is that women have their menstruall fluxes chiefly or most commonly at that time.

In what aire most contagious.

In a grosse and cloudy Aire the pestilent infection is less vehement and contagious than in a thin and subtle Aire; whether that thinnesse of the Aire proceed from the heat of the Sun, or from the North wind & cold. Therefore at *Paris*, where naturally, and also through the abundance of filth that is about the Citie, the Aire is darke and grosse, the pestilent infection is lesse fierce and contagious than it is in *Province*, for the subtlety of the Aire stimulates or helps forward the Plague.

What effects feare and confidence produce in the Plague.

But this disease is mortall and pernicious wheresoever it bee, because it suddenly assaulteth the heart, which is the Mansion, or as it were the fortresse or castle of life: but commonly not before the signes and tokens of it appeare on the body: and yet you shall scarce find any man that thinketh of calling the Physician to helpe to preserve him from so great danger before the signes thereof be evident to bee seene and felt: but then the heart is assaulted. And when the heart is so assaulted, what hope of life is there, or health to be looked for? Therefore because medicines come oftentimes too late, and this malady is as it were a sudden and winged messenger of our death, it commeth to passe that so many dye thereof. And moreover, because at the first suspicion of this so dire and cruell a disease, the imagination and minde (whose force in the diversly stirring up of the humours is great and almost incredible) is so troubled with feare of imminent death, and dispaire of health, that together with the perturbed humours, all the strength and power of nature falleth and sinketh downe.

This you may perceive and know, by reason that the keepers of such as are sicke, and the bearers which are not fearefull, but very confident, although they doe all the basest offices which may be for the sick, are commonly not infected, and seldome dye thereof if infected.

CHAP. XVIII.

How a pestilent feaver comes to be bred in us.

THe Plague oft-times findeth fuel in our bodies, and oft-times allurements, to wit, the putrefaction of humours, or aptnesse to putrefie : but it never thence hath its first originall, for that comes alwaies from the defiled aire; therefore a pestilent feaver is thus bred in us : The pestilent Aire drawne by inspiration into the lungs, and by transpiration into the utmost mouthes of the veines and arteries spread over the skin, the bloud or else the humours already putrefying or apt to putrefie therein, are infected and turned into a certaine kind of malignity resembling the nature of the agent. These humours, like unquencht lime when it is first sprinkled with water, send forth a putride vapour, which carryed to the principall parts and heart especially, infecteth the spirituous bloud boyling in the ventricles thereof, and therewith also the virall spirits; and hence proceeds a certaine feaverish heat. This heat diffused over the body by the arteries, together with a maligne quality, taints all, even the solid parts of the bones with the pestiferous venome, and besides, causeth divers symptomes, according to the nature thereof, and the condition of the body and humours wherein it is. Then is the conflict of the malignity a. Tailing, & nature defending, manifest, in which if nature prevaile, it, using the help of the expulsive faculty, will send & drive it far from the noble parts, either by sweats, vomits, bleeding, evacuation by stooles or urine, buboes, carbuncles, pustles, spots, and other such kinds of breakings out over the skin. But on the contrary, if the malignity prevaile, and nature be too weake, and yeeld, and that first he be troubled with often panting or palpitation of the heart, then presently after with frequent faintings, the patient then at length will dye. For this is a great signe of the Plague or a pestilent Feaver, if presently at the first, with no labour, nor any evacuation worth the speaking of, their strength faile them, and they become exceeding faint. You may find the other signes mentioned in our preceding discourse.

The originall of the Plague alwaies from the Aire.

Signes that nature is overcome.

CHAP. XIX.

Into what place the Patient ought to betake himselfe so soone as he finds himselfe infected.

WE have said that the perpetuall and first originall of the pestilence commeth of the Aire, therefore so soone as one is blasted with the pestiferous Aire, after he hath taken some preservative against the malignity thereof, hee must withdraw himselfe into some wholesome Aire, that is, cleane and pure from any venemous infection or contagion, for there is great hope of health by the alteration of the Aire; for we doe most frequently and abundantly draw in the Aire of all things, so that we cannot want it for a minute of time : therefore of the Aire that is drawne in, dependeth the correction, amendment, or increase of the Poyson or malignity that is received, as the Aire is pure, sincere or corrupted.

Change of the Aire conduceth to the cure of the Plague.

There bee some that doe think it good to shut the patient in a close Chamber, shutting the windowes to prohibite the entrance of the Aire as much as they are able : But I thinke it more convenient that those windowes should bee open from whence that wind bloweth that is directly contrary unto that which brought in the venemous Aire : For although there be no other cause, yet if the Aire bee not moved, or agitated, but shut up in a close place, it will soone bee corrupted. Therefore in a close and quiet place that is not subject to the entrance of the Aire, I would wish the patient to make wind, or to procure Aire with a thick and great cloth dipped or macerated in water and vinegar mixed together, and tyed to a long Staffe, that by raising it up and downe the close chamber, the wind or aire thereof may coole and re-

Aire pent up is apt to putrefie.

create the patient. The patient must every day bee carried into a fresh chamber, and the beds and the linnen cloaths must be changed : there must alwaies be a cleare and bright fire in the patients chamber, and especially in the night, whereby the aire may be made more pure, cleane, and voyd of nightly vapours, and of the filthy and pestilent breath proceeding from the patient, or his excrements. In the meane time, lest (if it be in hot weather) the patient should be weakened or made more faint by reason that the heat of the fire doth disperse and waist his spirits, the Floor or ground of the chamber must bee sprinkled or watered with vinegar and water, or strowed with the branches of vines made moist in cold water, with the leaves and flowers of Water-lillyes, or Poplar, or such like. In the fervent heat of summer hee must abstaine from Fumigations that doe smell too strongly, because that by assaulting the head, they encrease the paine.

If the patient could goe to that cost, it were good to hang all the chamber where he lyeth, and also the Bed, with thicke or course linnen cloaths moistened in vinegar and water of Roses. Those linnen cloaths ought not to be very white, but somewhat browne, because much and great whitenesse doth disperse the sight, and by waisting the spirits, doth encrease the paine of the head : for which cause also the Chamber ought not to bee very lightsome.

Contrariwise, on the night season there ought to bee fires and perfumes made, which by their moderate light, may moderately call forth the spirits.

The materials
for sweet fires.

Lib. 16. cap. 13.

Sweet fires may be made of little pieces of the wood of Juniper, Broom, Ash, Tamarisk, of the rinde of Oranges, Lemmons, Cloves, Benzoin, gum Arabick, Orris roots, Mirrhe, grossely beaten together, and layd on the burning coals put into a chafing dish. Truly the breath or smoake of the wood or berries of Juniper, is thought to drive serpents a great way from the place where it is burnt. The vertue of the Ash-tree against venome is so great, as *Pliny* testifieth, that a serpent will not come under the shadow thereof, no not in the morning nor evening, when the shaddow of any thing is most great and long, but she will runne from it. I my selfe have proved that if a circle or compasse bee made with the boughes of an Ash-tree, and a fire made in the midst thereof, and a serpent put within the compasse of the boughs, that the serpent will rather runne into the fire than through the Ash boughes.

There is also another meanes to correct the Aire. You may sprinkle vinegar of the decoction of Rue, Sage, Rosemary, Bay berries, Juniper berries, *Cyperus* nuts, & such like, on stones or bricks made red hot, and put in a pot or pan, that all the whole chamber where the patient lyeth may be perfumed with the vapour thereof.

Perfumes.

Also fumigations may bee made of some matter that is more grosse and clammy, that by the force of the fire the fume may continue the longer, as of *Ladanum*, Myrrhe, Masticke, Rosine, Turpentine, Storax, *Olibanum*, Benzoin, Bay berries, Juniper berries, Cloves, Sage, Rosemary, and Marjoram, stamped together, and such like.

Sweet candles.

Those that are rich and wealthy may have Candles and Fumes made of waxe, or Tallow mixed with some sweet things.

A sponge macerated in Vinegar of Roses, and Water of the same, and a little of the decoction of Cloves, and of Camphire added thereto, ought alwties to be ready at the patients hand, that by often smelling unto it, the animall spirits may be recreated and strengthened.

A sweet water
to smell to.

The water following is very effectuall for this matter. Take of Orris, foure ounces; of Zedoarie, Spikenard, of each sixe drammes; of Storax, Benzoin, Cinamon, Nutmegs, Cloves, of each one ounce and a halfe; of old Treacle, halfe an ounce: bruise them into a grosse powder, and macerate them for the space of twelve houres in foure pound of white and strong wine, then distill them in a Limbeck of glasse on hot ashes, and in the distilled liquor wet a sponge, and then let it be syed in a linnen cloath, or closed in a boxe, and so often put unto the nostrills. Or take of the vinegar and water of roses, of each foure ounces; of Camphire, sixe graines; of Treacle, half a dram: let them be dissolved together, and put into a viall of glasse, which the patient may often put unto his nose.

A Nodula
to smell to.

This *Nodula* following is more meet for this matter. Take of Rose leaves, two pugils

pugils; of Orris halfe an ounce; of *Calamus Aromaticus*, Cynamon, Cloves, of each two drammes; of Storax and Benzoin, of each one dramme and a halfe; of *Cyperus*, halfe a dramme: beat them into a grosse powder, make thereof a *Nodula* betweene two pieces of Cambricke or Lawe of the bignesse of an hand-ball, then let it bee moistened in eight ounces of Rose water, and two ounces of Rose vinegar, and let the patient smell unto it often. These things must be varied according to the time: For in the Summer you must use neither Muske nor Civet, nor such like hot things: and moreover women that are subject to fits of the Mother, and those that have Feavers or the head-ach, ought not to use those things that are so strong smelling & hot, but you must make choice of things more gentle: Therefore things that are made with a little Camphire and Cloves bruised and macerated together in Rose water & vinegar of Roses, shall be sufficient.

CHAP. XX.

What Diet ought to be observed, and first of the choice of Meat.

THe order of diet in a pestilent disease ought to bee cooling and drying; not slender, but somewhat full. Because by this kinde of disease there commeth wasting of the spirits, and exolution of the faculties, which interreth often swooning, therefore that losse must be repaired as soone as may be with more quantity of meates that are of easie concoction and digestion. Therefore I never saw any being infected with the pestilence that kept a slender diet, that recovered his health, but died; and few that had a good stomacke, and fed well, dyed.

Why such as have the plague may feed more fully.

Sweet, grosse, moist and clammy meates, and those which are altogether, and exquisitely of subtle parts, are to be avoyded; for the sweet do easily take fire, and are soone enflamed; the moist will putrefie; the grosse and clammy obstruct, and therefore engender putrefaction; those meats that are of subtle parts, over-much attenuate the humours, and enflame them, and doe stirre up hot and sharp vapours into the braine, whereof commeth a Feaver. Therefore wee must eschew Garlike, Onions, Mustard, salted and spiced Meats, and all kind of Pulse must also be avoided, because they engender grosse winds, which are the authors of obstruction: but the decoction of them is not alwayes to be refused, because it is a provoker of urine. Therefore let this bee their order of diet: let their bread bee of Wheat or Barly, well wrought, well leavened and salted, neither too new nor too stale: let them bee fed with such meat as may be easily concocted and digested, & may engender much laudable juice, and very little excrementall, as are the flesh of Wether-lambs, Kids, Leverets, Pullets, Partridges, Pigeons, Thrushes, Larkes, Quails, Blacke-Birds, Turtle-Doves, Moor-Hennes, Pheasants, and such like, avoyding water-Fowles. Let the Flesh be moistened in Ver-juice of unripe Grapes, Vinegar, or the juice of Lemmons, Oranges, Cytrons, tart Pomegranates, Barberries, Goose-berries, or red Currance, or of garden, & wild sorrell: for all these sowe things are very wholesome in this kinde of disease, for they doe stirre up the appetite, resist the venemous quality and putrefaction of the humours, restrain the heat of the Feaver, and prohibit the corruption of the meates in the stomacke. Although that those that have a more weake stomacke, and are endued with a more exact sense, and are subject to the Cough and diseases of the Lungs, must not use these, unlesse they be mixed with Sugar and Cynamon.

Pulse must be shunned.

The manner of diet.

If the patient at any time be fed with sodden meats, let the brothes be made with Lettuce, Purslaine, Succory, Borage, Sorrell, Hops, Buglosse, Cresses, Burnett, Marigolds, Chervill, the cooling Seeds, french Barly and Oatmeale, with a little Saffron, for Saffron doth engender many spirits, and resisteth poyson. To these opening roots may be added for to avoid obstruction; yet much broath must be refused by reason of moisture. The fruit of Capers eaten in the beginning of the Meale provoke the appetite, and prohibit obstructions, but they ought not to bee seasoned

with

with over-much Oyle and Salt, they may also with good successe bee put into Broaths.

Fishes are altogether to be avoyded, because they soon corrupt in the Stomack : but if the patient be delighted with them, those that live in stony places must be chosen, that is to say, those that live in pure and sandy water, & about rocks and stones, as are Trouts, Pikes, Pearches, Gudgions, and Cravises boyled in milk, Wilks, and such like. And concerning Sea-fish, he may be fed with Giltheads, Gurnarts, with all the kinds of Cod-fish, Whitinges not seasoned with salt, and Turbutts.

Egges potched and eaten with the juice of Sorrell, are very good. Likewise Barly water seasoned with the graines of a tart Pomegranate, and if the Feaver be vehement, with the seeds of white Poppy. Such Barly water is easie to be concocted and digested, it cleanseth greatly, and moistens and mollifieth the belly. But in some it procures an appetite to vomit, and paine of the head, and those must abstaine from it. But instead of barly water they may use pap, and bread crummed in the decoction of a Capon.

For the second course.

For the second course, let him have raisons of the Sunne newly sodden in Rose water with Sugar, foure Damaske Prunes, tart Cherries, Pippins, and Katharine Peares.

In the end of the meale.

And in the latter end of the Meale, Quinces roasted in the Embers, Marmelate of Quinces, and conserves of Buglosse or of Roses, and such like, may be taken : or else this powder following.

Take of Coriander seeds prepared, two drams ; of Pearle, Rose leaves, shavings of Hartshorne and Ivory, of each halfe a dram ; of Amber two scruples ; of Cinamon one scruple ; of Unicorne's horne, and the bone in a Stagges heart, of each half a scruple ; of Sugar of Roses, foure ounces : Make thereof a powder, and use it after meats.

If the patient be somewhat weake, he must be fed with Gelly made of the flesh of a Capon, and Veale sodden together in the water of Sorrell, *Carduus benedictus*, with a little quantity of Rose vinegar, Cynamon, Sugar, and other such like, as the present necessity shall seeme to require.

In the night season for all events and mischances, the patient must have ready prepared broth of meats of good digestion, with a little of the juice of Citrons or Pomegranates.

A restorative drinke.

This restorative that followeth may serve for all. Take of the conserve of Buglosse, Borage, Violets, Water-lillies, and Succory, of each two ounces ; of the powder of the Electuary *Diamargaritum Frigidum*, of the Trochiscs of Camphire, of each three drams : of Citron seeds, *Carduus* seeds, Sorrell seeds, the rootes of *Diptamnus*, Tormentill, of each two drammes ; of the broth of a young Capon, made with Lettuce, Purslaine, Buglosse and Borage boiled in it, fixe pints, ; put them in a Lembecke of glasse with the flesh of two Pullets, of so many Partridges, and with fiftene leaves of pure gold : make thereof a destillation over a soft fire. Then take of the distilled liquor, half a pint, straine it through a woollen bagge, with two ounces of white Sugar, and halfe a dram of Cynamon : let the patient use this when he is thirstie. Or else put the flesh of one old Capon, and of a legge of Veale, two minced Partridges, and two drammes of whole Cinamon without any liquor, in a lembecke of glasse, well luted and covered, and so let them boile in *Balneo Maria* unto the perfect concoction. For so the fleshes will bee boiled in their owne juice, without any hurt of the fire ; then let the juice bee pressed out therehence with a presse : give the patient for every dose, one ounce of the juice with some cordiall waters, some *Trisantalum*, and *Diamargaritum frigidum*.

The preserves of sweet fruits are to bee avoided, because that sweet things turne into choler ; but the confectiion of tart prunes, Cherries, and such like may bee fildy used. But because there is no kinde of sicknesse that so weakens the strength, as the plague ; it is alwaies necessary, but yet sparingly and often, to feed the patient, still having respect unto his custome, age, the region, and the time : for through emptinesse there is great danger, lest that the venemous matter that is driven out to the superficiall parts of the body, should be called backe into the inward parts, by an hungry

grie stomacke, and the stomacke it selfe should be filled with cholericke, hot, thin, and sharp excrementall humours, whereof commeth biting of the stomack, and gripings in the guts.

CHAP. XXI.

What drinke the Patient infected ought to use.



If the feaver be great and burning, the patient must abstain from wine, unlesse that he be subject to swooning: and he may drinke the *Oxymel* following in stead thereof.

Take of faire water, three quarts, wherein boyle foure ounces of hony untill the third part bee consumed, scumming it continually; then strain it, and put it into a cleane vessell, and adde thereto four ounces of vinegar, and as much cinamon as will suffice to

An Oxymel.

give it a tast. Or else a sugred water, as followeth. Take two quarts of faire water, of hard sugar, fixe ounces, of cinamon, two ounces, strain it through a woollen bagge or cloth without any boiling; and when the patient will use it, put thereto a little of the juice of Citrons. The syrupe of the juice of Citrons excelleth amongst all others that are used against the pestilence.

The use of the Julep following is also very wholsome. Take of the juice of Sorrell well clarified, halfe a pint, of the juice of Lettuce so clarified, foure ounces, of the best hard sugar, one pound, boile them together to a perfection, let them bee strained and clarified, adding a little before the end a little vinegar, let it be used betweene meales with boyled water, or with equall portions of the water of Sorrell, Lettuce, Scabious and Buglosse: or take of this former described Julep strained and clarified foure ounces, let it be mixed with one pound of the forenamed cordiall waters, and boile them together a little. And when they are taken from the fire, put thereto of yellow Sanders one dram, of beaten Cinamon halfe a dram, strain it through a cloth: when it is cold let it be given the patient to drink with the juice of Citrons.

A Julep.

Those that have accustomed to drink Sider, Perry, Beer or Ale, ought to use that drink still, so that it be clear, transparent, and thin, and made of those fruits that are somewhat tart; for troubled & dreggish drink doth not only engender grosse humors, but also crudities, windiness, and obstructions of the first region of the body, whereof comes a feaver.

Oxycrate being given in manner following, doth assuage the heat of the feaver, and repress the putrefaction of the humours, and the fiercenesse of the venome, and also expelleth the water through the veines, if so bee that the patients are not troubled with spitting of blood, cough, yexing, and altogether weake of stomacke: for such must avoyd all tart things.

The commodities of oxycrate.

To whom hurtfull.

Take of faire water, one quart; of white or red vinegar three ounces; of fine Sugar, foure ounces; of syrup of Roses, two ounces: boile them a little, and then give the patient thereof to drinke. Or take of the juice of Lemmons & Citrons, of each halfe an ounce; of juice of foure Pomegranates, two ounces; of the water of Sorrell and Roses, of each one ounce; of faire water boyled, as much as shall suffice: make thereof a Julep, and use it betweene meales. Or take of Sirupe of Lemmons and of red Currance, of each one ounce; of the water of lillies, foure ounces; of faire water boyled, halfe a pinte; make thereof a Julep. Or take of the Syrups of water Lillies, and vinegar, of each half an ounce, dissolve it in five ounces of the water of Sorrell; of faire water one pinte: make thereof a Julep.

But if the patient be young, and have a strong and good stomacke, and cholericke by nature, I thinke it not unmeet for him to drinke a full and large draught of faine water cold; for that is effectually to restraine and quench the heat of the Feaver, and contrariwise, they that drinke cold water often, and a very small quantiry at a time, as the Smith doth sprinkle water on the fire at his Forge, doe encrease the heat

The drinking of cold water, to whom & when profitable.

Lib. 3. cap. 7.

and burning, and thereby make it endure the longer. Therefore by the judgment of *Celsus*, when the disease is in the chiefe encrease, and the patient hath endured thirst for the space of three or four daies, cold water must be given unto him in great quantity, so that he may drink past his satiety, that when his belly and stomacke are filled beyond measure, and sufficiently cooled, he may vomit.

Some doe not drinke so much thereof as may cause them to vomit, but do drinke even unto satiety, and so use it for a cooling medicine; but when either of these is done, the patient must bee covered with many cloaths, and so placed that hee may sleepe; and for the most part, after long thirst and watching, and after long fulnesse, and long and great heat, sound sleep commeth, by which great sweat is sent out, and that is a present helpe.

But thirst must sometimes be quenched with little pieces of Melons, Gourds, Cucumbers, with the leaves of Lettuce, Sorrell, and Purslaine, made moist or soaked in cold water, or with a little square piece of a Citron, Lemmon, or Orange macerated in Rose water, & sprinkled with Sugar, and so held in the mouth, and then changed.

For drynesse or
roughnesse of
the mouth.

But if the patient be aged, his strength weak, slegmatick by nature, & given to wine, when the state of the Feaver is somewhat past, and the chiefe heat beginning to abswage, he may drink wine very much allayed at his meat, for to restore his strength, and to supply the want of the wasted spirits. The patient ought not by any meanes to suffer great thirst, but must mitigate it by drinking, or else allay it by washing his mouth with oxycrate and such like, and he may therein also wash his hands and his face, for that doth recreate the strength. If the fluxe or lask trouble him, he may very well use to drinke steeled water, and also boyled milke, wherein many stones coming red hot out of the fire have beene many times quenched. For the drynesse and roughnesse of the mouth, it is very good to have a cooling, moistening and lenifying lotion of the mucilaginous water of the infusion of the seeds of Quinces, *psilium*, *id est*, Flea-wort, adding thereto a little Camphire, with the Water of Plantain and Roses; then cleanse and wipe out the filth, and then moisten the mouth, by holding therein a little oile of sweete Almonds mixed with a little syrupe of Violets. If the roughnesse breed or degenerate into Ulcers, they must be touched with the water of the infusion of sublimate, or *Aqua fortis*.

For the Ulcers
thereof.

The choice of
waters.

But because wee have formerly made frequent mention of drinking of water, I have here thought good to speake somewhat of the choice and goodnesse of waters. The choice of waters is not to be neglected, because a great part of our diet depends thereon, for besides that we use it either alone, or mixed with wine for drink, we also knead bread, boile meat, and make broaths therewith. Many thinke that rain water which falls in summer, and is kept in a cisterne well placed and made, is the wholesomest of all. Then next thereto they judge that spring water which runnes out of the tops of mountaines, through rocks, cliffes and stones: in the third place they put Well water, or that which riseth from the foots of hills. Also the river water is good that is taken out of the midst or streame. Lake or pond water is the worst, especially if it stand still; for such is fruitfull of and stored with many venemous creatures, as Snakes, Toads, and the like. That which comes by the melting of Snow and Ice is very ill, by reason of the too refrigerating faculty and earthy nature. But of spring and well waters these are to be judged the best, which are insipide, without smell, & colour; such as are cleare, warmish in winter, and cold in summer, which are quickly hot and quickly cold, that is, which are most light, in which all manner pulse, turneps, and the like, are easily and quickly boyled. Lastly, when as such as usually drink thereof, have cleer voices and shrill, their chests sound, and a lively and fresh colour in their faces.

hip. sect. 5.
apbor. 26.

CHAP. XXII.

Of Antidotes to be used in the Plague.



Now we must treat of the proper cure of this disease, which must be used as soone as may be possible, because this kinde of poyson in swiftnesse exceedeth the celerity of the medicine. Therefore it is better to erre in this, that you should think every disease to be pestilent in a pestilent season, and to cure it as the Pestilence: because that so long as the Ayre is polluted with the seeds of the Pestilence, the humours in the body are soone infected with the vicinity of such an ayre, so that then there happeneth no disease voyd of the Pestilence, that is to say, which is not pestilent from the beginning by his owne nature, or which is not made pestilent.

Many begin the cure with blood-letting, some with purging, and some with Antidotes. We, taking a consideration of the substance of that part that is assailed, first of all begin the cure with an Antidote, because that by its specificke property, it defends the heart from poyson, as much as it is offended therewith. Although there are also other Antidotes which preserve & keep the heart & the patient from the danger of Poyson and the Pestilence, not onely because they doe infringe the power of the poyson in their whole substance, but also because they drive and expell it out of all the body by sweat, vomiting, scowring, and such other kinds of evacuations.

The beginning of the cure must be by antidotes.

The Antidote must be given in such a quantity as may be sufficient to overcome the poyson; but because it is not good to use it in greater quantitie than needeth, lest it should overthrow our nature, for whose preservation onely it is used, therefore that which cannot be taken together and at once, must be taken at severall times, that some portion thereof may daily be used so long, untill all the accidents, effects and impressions of the poyson be past, and that there be nothing to be feared. Some of those Antidotes consist of portions of venemous things, being tempered together, and mixed in an apt proportion with other medicines, whose power is contrary to the venome: as Treacle, which hath for an ingredient the flesh of Vipers, that it being therto mixed may serve as a guide to bring all the antidote unto the place where the venenate malignity hath made the chiefe impression; because by the similitude of nature and sympathy, one poyson is suddenly snatched and carryed unto another. There are other absolute poisonous, which neverthelesse are Antidotes one unto another: as a Scorpion himselfe cureth the prick of a Scorpion. But Treacle and Mithridate excell all other Antidotes: for by strengthening the noblest part, and the mansion of life, they repaire and recreate the wasted Spirits, and overcome the poyson, not onely being taken inwardly, but also applyed outwardly to the region of the heart, Bitches and Carbuncles: for by an hidden property they draw the poysons unto them, as Amber doth Chasse, and digest it when it is drawne, and spoile and robbe it of all its deadly force; as it is declared at large by *Galen*, in his booke *de Theriaca ad Pisonem*, by most true reasons and experiments. But you will say that these things are hot, and that the Plague is often accompanied with a burning Feaver. But thereto I answer, there is not so great danger in the Feaver as in the Pestilence, although in the giving of Treacle, I would not altogether seeme to neglect the Feaver, but think it good to minister or apply it mixed with cordiall cooling medicines, as with the Trochiscs of Camphire, syrupe of Lemons, of water Lillies, the water of Sorrell, and such like. And for the same cause we ought not to choose old Treacle, but that which is of a middle age, as of one or two yeares old: to those that are strong, you may give halfe a dramme, and to those that are more weake, a dram.

In what quantity they must be taken.

Why poisonous things are put into Antidotes.

Some poysons Antidotes to other soues.

The patient ought to walke presently after that hee hath taken Treacle, Mithridate, or any other Antidote; but yet as moderately as hee can: not like unto many, which when they perceive themselves to be infected, doe not cease to course and run up and downe, untill they have no strength to sustaine their bodies, for so they dissolve nature, so that it cannot suffice to overcome the contagion. After moderate

How to walke after the taking of an Antidote.

rate walking, the patient must be put warm to bed, and covered with many clothes, & warm brick-bats or tiles applyed to the soles of his feet; or in stead thereof you may use swines bladders filled with hot water, and apply them to the groines and armerholes, to provoke sweate: for sweating in this disease is a most excellent remedy, both for to evacuate the humours in the Feaver, and also to drive forth the malignity in the Pestilence, although every sweate brings not forth the fruit of health. For *George Agricola* saith, that hee saw a woman at *Misnia* in Germanie, that did sweat so for the space of three dayes, that the bloud came forth at her head and breast, & yet neverthelesse shee died.

A sudorifick
porion.

This porion following will provoke sweate. Take the roots of *China* shaved in thinne pieces one ounce and halfe; of *Guajacum* two ounces; of the barke of *Tamariske* one ounce; of *Angelica* roots two drams; of the shaving of *Hats-horne* one ounce; of *Juniper* berries three drams; put them into a viall of glasse that wil contain fixe quarts, put thereto foure quarts of running or river water that is pure and cleare, macerate them for the space of one whole night on the hot ashes: and in the morning boile them all in *Balneo Mariae*, untill the halfe bee consumed, which will bee done in the space of fixe houres; then let them be strained through a bagge, and then strained againe, but let that be with fixe ounces of sugar of *Roses*, and a little *Treacle*: let the patient take eight ounces or fewer of that liquor, and it will provoke sweat. The powder following is also very profitable. Take of the leaves of *Dictamnus*, the roots of *Tormentill*, *Betony*, of each halfe an ounce, of bole *Armenicke* prepared one ounce, of *Terra Sigillata* three drams, of *Aloes* and *Myrrhe*, of each halfe a dram, of *Saffron* one dram, of *Masticke* two drams: powder them all according to art, and give one dram thereof dissolved in *Rose-water*, or the water of wild *Sorrell*, and let the patient walke so soone as he hath taken that powder; then let him be laid in his bed to sweat as I have shewed before.

A sudorifick
powder.

A distilled wa-
ter against the
Plague.

The water following is greatly commended against poyson. Take the roots of *Gentian* & *Cyperus*, of each three drams; of *Cardus benedictus*, *Burnet*, of each one handfull; of *Sorrell* seeds and *Divels-bit*, of each two pugils; of *Ivie* and *Juniper* berries, of each halfe an ounce; of the flowers of *Buglosse*, *Violets* and red *Roses*, of each two pugils: powder them somewhat grossely, then soake or sleepe them for a night in white wine and *Rose-water*: then adde thereto of bole *Armenick* one ounce, of *Treacle* halfe an ounce, distill them all in *Balneo Mariae*, and keepe the distilled liquor in a vial of glasse wel covered or close stopped for your use: let the patient take fixe ounces thereof with *Sugar* and a little *Cinamon* & *Saffron*: then let him walk, and then sweat as is afore said: the *Treacle* and cordiall water formerly prescribed are very profitable for this purpose. Also the water following is greatly commended. Take of *Sorrell* fixe handfuls, of *Rue* one handfull: dry them & macerate them in vinegar for the space of foure and twenty houres, adding thereto foure ounces of *Treacle*: make thereof a distillation in *Balneo Mariae*, and let the distilled water bee kept for your use; and so soone as the patient doth thinke himselfe to be infected, let him take foure ounces of that liquor, then let him walke and sweate. He must leave

Another.

What meane to
be used in swea-
ring.

sweating when he beginneth to waxe faint and weake, or when the humour that runs downe his body begins to waxe cold, then his body must be wiped with warme clothes, and dried. The patient ought not to sweat with a full stomacke, for so the heat is called away from performing the office of concoction: also he must not sleep when he is in his sweat, lest the malignity goe inwardly with the heat and spirits unto the principall parts; but if the patient bee much inclined to sleep, hee must bee kept from it with hard rubbing, and bands tyed about the extreme parts of his body; and with much noise of those that are about him, and let his friends comfort him with the good hope that they have of his recovery; but if all this will not keepe him from sleepe, dissolve *Castoreum* in tart *Vinegar*, and *Aqua vita*, and let it bee injected into his nostrils: and let him bee kept continually waking the first day, and on the second and third, even unto the fourth; that is to say, unto the perfect expulsion of the venome; and let him not sleep above three or foure houres on a day and night. In the meane time let the Physician that shall bee present consider all things by his strength: for it is to be feared, that great watchings will dissolve the

strength

strength, and make the patient weake: you must not let him eate within three houres after his sweating; in the meane season, as his strength shall require, let him take the rinde of a preserved Citron, conserve of Roses, bread toasted and steeped in wine, the meat of a preserved Myrabolane, or some such like thing.

CHAP. XXIII.

Of Epithemes to be used for the strengthening of the principall parts.

Here are also some topick medicines to bee reckoned amongst Antidotes, Whereof they must be made. which must be outwardly applyed as speedily as may be, as cordiall and hepaticke Epithemes for the safety of the noble parts, and strengthening of the faculties, as those that drive the venenate aire farre from the bowels: they may be made of cordiall things not onely hot, but also cold, that they may temper the hear, and more powerfully repercussive. They must be applyed warme with a scarlet, or a double linnen cloth, or a soft sponge dipped in them, if so be that a Carbuncle doe not possesse the regions of the noble parts, for it is not fit to use repercussives to a Carbuncle. Repercussives not fit to be applyed to Carbuncles. You may make Epithemes after the following formes; R. aquar. ros. plantag. & solan. an. ʒiv. aqua acetos. vini granat. & aceti, an. ʒiii. santal. rub. & coral. rub. pulveris. an. ʒiii. theriac. vet. ʒʒ. camph. ʒii. croci ʒi. carioph. ʒʒ. misce, fiat epithema. Or else, R. aqu. ros. & plantag. an. ʒx. aceti ros. ʒiv. carioph. sant. rub. coral. rub. pulveris. pul. diamargarit. frigid. an. ʒʒ. caphura & moschi an. ʒi. fiat epithema. Or, R. aquar. rosar. & melissa, an. ʒiv. aceti ros. ʒiii. sant. rub. ʒi. caryophyl. ʒʒ. croci. ʒii. caphura ʒi. boli arm. terra sigil. & Zedoar. an. ʒi. fiat epithema. Or else, R. aceti rosat. & aqua rosat. an. ʒʒ. caphura ʒʒ. theriac. & mithridat. an. ʒi. fiat epithema. Or else, aqu. rosar. nenuph. buglos. acetosa, aceti rosar. an. ʒʒ. sant. rub. ros. rub. an. ʒiii. flor. nenuph. violar. caphur. an. ʒʒ. mithrid. & theriac. an. ʒii. terantur & misceantur simul omnia. When you intend to use them, take some portion of them in a vessel by its selfe, wherewith let the affected bowell be fomented warme.

CHAP. XXIII.

Whether purging and blood-letting bee necessary in the beginning of pestilent diseases.

Soon as the heart is strengthened & corroborated with cordials & antidotes, we must come to phlebotomy & purging. As concerning blood-letting in this case, there is a great controversie among Physicians. Those that wish it to be used, say or affirme that the pestilent Feaver doth infixe it selfe in the blood, and therein also the pestilent malignity taketh its seate; and therefore it will soone infect the other humours, unlesse that the blood be evacuated, & the infection that remaineth in the blood be thereby taken away. Contrariwise, those that do not allow phlebotomy in this case, alledge, that it often cometh to passe that the blood is voyd of malignity when the other humours are infected with the venomous contagion. If any man require my judgement in this doubtful question, I say, that the pestilence sometimes doth depend on the default of the aire: This default being drawne through the passages of the body, doth at length pierce unto the entrals, as we may understand by the abscesses which breake out one while behind the eares, sometimes in the arme-holes, and sometimes in the groines, as the braine, heart or liver are infected. And hercof also come Carbuncles, and other collections of matter, and eruptions, which are seene in all parts of the body, by reason that nature using the strength of the expulsive faculty, doth drive forth whatsoever is noysome or hurtfull. Therefore if the Physician will follow this motion of nature, he must neither purge nor let blood, lest that by a contrary motion, that is, by drawing in from without, the motion of nature which proceeds outward-

Reasons for and against blood-letting in the Plague.

The composing of this controversie.

ly from within, should be troubled. So wee often see in those who are purged or let blood for such Buboes as come through unlawfull copulation, that the matter is thereby made contumacious, and by drawing it inwardly, it speedily causeth the French Pocks.

Wherefore, when Buboes, Carbuncles and other pestilent eruptions appeare, which come through the default of the Aire, we ought to abstain from purging and phlebotomie; but it is sufficient to fore-arme the heart inwardly and outwardly with Antidotes that are endued with a proper vertue of resisting the poyson. For it is not to bee doubted, but that when nature is debilitated with both kindes of evacuation, and when the spirits together with the blood are exhausted, the venomous Aire will soone pierce, and be received into the empty body, where it exerciseth its tyranny to the utter destruction thereof.

A history.

In the yeare of our Lord God 1565. in which yeare there was great mortality throughout all France, by reason of the pestilence and pestilent diseases, I earnestly & diligently enquired of all the Physicians & Chirurgians of all the Cities (through which King *Charles* the ninth passed in his progresse unto Bayon) what successe their patients had after they were letten blood and purged, whereunto they all answered alike, that they had diligently observed, that all that were infected with the Pestilence, and were letten bleed some good quantity of blood, or had their bodies somewhat strongly purged, thenceforwards waxed weaker and weaker, and so at length dyed; but others which were not let blood nor purged, but took cordiall Antidotes inwardly, and applyed them outwardly, for the most part escaped and recovered their health: for that kind of Pestilence tooke its originall of the primitive and solitary default of the Aire, and not of the corruption of the humours.

When purging
and bleeding
may be used.

The like event was noted in the hoarsenesse that we spake of before: that is to say, that the patients waxed worse and worse by purging and phlebotomie; but yet I doe not disallow either of those remedies, if there be great fulnesse in the body, especially in the beginning, and if the matter have a cruell violence, whereof may bee feared the breaking in unto some noble part. For wee know that it is confirmed by *Hypocrates*, that what disease soever is caused by repletion, must be cured by evacuation: and that in diseases that are very sharpe, if the matter do swell, it ought to be remedied the same day, for delay in such diseases is dangerous; but such diseases are not caused or inflicted upon mans body by reason or occasion of the pestilence, but of the diseased bodies, and diseases themselves commixed together with the Pestilence; therefore then peradventure it is lawfull to purge strongly, and to let a good quantity of blood, lest that the pestilent venome should take hold of the matter that is prepared, and so infect it with a contagion, whereby the Pestilence taketh new and farre greater strength; especially as *Celsus* admonisheth us, where he saith; that, By

Aph. 22. sect. 2.
Aph. 10. sect. 4.

how much the sooner those sudden invasions doe happen, by so much the sooner remedies must be used, yea or rather rashly applyed; therefore if the veines swell, the face waxe fiery red, if the arteries of the temples beat strongly, if the patient can very hardly breathe by reason of a weight in his stomacke, if his spittle be bloody, then ought he to bee let blood without delay, for the causes before mentioned. It seems best to open the liver veine on the left arme, whereby the heart and the spleene may be better discharged of their abundant matter; yet blood-letting is not good at all times, for it is not expedient when the body beginneth to waxe stiffe by reason of the comming of a Feaver; for then by drawing backe the heat and spirits inwardly, the outward parts being destitute of blood, waxe stiffe and cold: therefore blood cannot bee letten then without great losse of the strength, and perturbation of the humours. And it is to be noted, that when those plethoricke causes are present, there is one Indication of blood-letting in a simple pestilent Feaver, and another in that which hath a *Bubo*, id est, a Botch or a Carbuncle joined therewith. For in one or both of these, being joyned with a vehement & strong burning Feaver, blood must be letten by opening the veine that is nearest unto the tumour or swelling against nature, keeping the straightnesse of the fibres, that this being open, the blood might be drawn more directly from the part affected; for all and every retraction of putrefied blood unto the noble parts, is to be avoyded, because it is noy some and hurtful to nature, and

Cap. 7. lib. 3.

Why blood
must be let on
the left arme in
the Plague.

to

to the patient. Therefore, for example sake, admit the patient be plethorick by repletion, which is called *Ad vasa, id est*, unto the vessels, and *Ad vires, id est*, unto the strength: and therewithall he hath a tumour that is pestilent in the parts belonging unto his head or necke, the blood must bee let out of the cephalick or median veine, or out of one of their branches dispersed in the arme on the grieved side. But if through occasion of fatte, or any other such like cause, those veines doe not appeare in the arme, there bee some that give counsell in such a case to open the veine that is betweene the fore-finger and the thumbe, the hand being put into warme water, whereby that veine may swell and be filled with blood, gathered thither by meanes of the heate.

If the tumour be under the arme-hole, or about those places, the liver veine, or the median must be opened which runneth alongst the hand: if it be in the groine, the veine of the hamme, or *Saphena*, or any other veine above the foote that appeareth well, but alwaies on the grieved side. And phlebotomie must bee performed before the third day: for this disease is of the kind or nature of sharpe diseases; because that within foure and twenty houres it runneth past helpe. In letting of blood you must have consideration of the strength. You may perceive that the patient is ready to swoone, when that his forehead waxeth moyst, with a small sweate suddenly arising, by the aking or paine at the stomacke, with an appetite to vomit, and desire to goe to stoole, gaping, blacknesse of the lippes, and sudden alteration of the face unto palenesse: and lastly most certainly by a small and slow pulse: and then you must lay your finger on the veine, and stop it untill the patient come to himselfe againe, either by nature, or else restored by art; that is to say, by giving unto him bread dipped in wine, or any other such like thing: then, if you have not taken blood enough, you must let it goe againe, and bleed so much as the greatnesse of the disease, or the strength of the patient will permit or require: which being done, some one of the Antidotes that are prescribed before will be very profitable to be drunk, which may repaire the strength, and infringe the force of the malignity.

CHAP. XXV.

Of purging medicines in a pestilent disease.

IF you call to minde the proper indications, purging shall seeme necessary in this kinde of disease, and that must bee prescribed as the present case and necessity requireth; rightly considering that the disease is sudden, and doth require medicines that may with all speede drive out of the body the hurtfull humour wherein the noysome quality doth lurke and is hidden; which medicines are diverse by reason of the diversity of the kinde of the humour, and the condition or temperature of the patient. For this purpose fixe graines of Scammonie beaten into powder, or else tenne graines are commonly ministred to the patient with one dram of Treacle. Also pills may be made in this forme: Take of Treacle and Mithridate, of each one dram; of *Sulphur vivum* finely powdred halfe a dram; of *Diagridium* foure graines: make thereof Pills. Or, Take three drams of Aloes, of Myrrhe and Saffron, of each one dram; of white Hel-lebore and Asarabacca, of each foure scruples: make thereof a masse with old Treacle, and let the patient take foure scruples thereof for a dose, three houres before meate. *Ruffus* his pills may be profitably given to those that are weake. The ancient Physicians have greatly commended Agarick for this disease, because it doth draw the noysome humours out of all the members: and the vertues thereof are like unto those of Treacle; for it is thought to strengthen the heart, and to draw out the malignity by purging. To those that are strong the weight of two drams may be given, and to those that are more weake, halfe a dram. It is better to give the infusion in a decoction, than in substance; for being elected and prepared truly into Trochises, it may be called a most divine kinde of medicine.

Antimonium is highly prayesed by the experience of many; but because I know the use

What purges
fit in the Plague.

use thereof is condemned by the councell and decree of the School of Physicians at Paris, I will here cease to speake of it.

Those medicines that cause sweats are thought to excell all others, when the Pestilence commeth of the venemous Ayre : among whom the efficacy of that which followeth hath beene proved, to the great good of many in that Pestilence which was lately throughout all Germany, as *Matthias Rodler* Chancellor to Duke *George* the Count Palatine signified unto me by letters.

An effectua
l sudorifick and
also purging
medicine.

They doe take a bundle of Mugwort, and of the ashes thereof after it is burnt, they make a lye with foure pints of water ; then they doe set it over the fire, and boyle it in a vessell of earth well leaded, untill the liquor be consumed, the earthy dregges falling unto the bottome like unto salt, whereof they make Trochiscs of the weight of a crowne of gold : then they dissolve one or two of those Trochiscs, according to the strength of the patient, in good Muskadine, and give it the patient to drinke, and let him walke after that hee hath drunke it for the space of halfe an houre ; then lay him in his bed, and there sweat him two or three houres, and then he will vomit, and his belly will bee loosed as if hee had taken Antimony ; and so they were all for the most part cured, especially all those that tooke that remedy betimes, and before the disease went unto their heart, as I my selfe have proved in some that were sicke at Paris, with most happy successe : Truly Mugwort is highly commended by the ancient Physicians, being taken and applyed inwardly or outwardly against the bitings of venemous creatures, so that it is not to be doubted but that it hath great vertue against the Pestilence.

The vertues of
Mugwort.

Vide Rondelet.

Lib. 7. de pif. 6. 3.

I have heard it most certainly reported by *Gilbertus Heroaldus* Physician of *Mompilier*, that eight ounces of the pickle of Anchoves, drunke at one draught, is a most certaine and approved remedie against the Pestilence, as he and many other have often found by experience. For the plague is no other thing but a very great putrefaction ; for the correction and amendment whereof, there is nothing more apt or fit than this pickle or substance of the Anchoves, being melted by the sun and force of the salt that is strawed thereon. There be some which infuse one dramme of *Walewort* seede in white wine, and affirme that it drunken will performe the like effect as Antimony. Others dissolve a little weight of the seede of *Rue* being bruised in Muskadine, with the quantity of a Beane of Treacle, and so drinke it. Others beate or bruise an handfull of the leaves or tops of *Broome* in halfe a pint of white wine, and so give it to the patient to drinke, to cause him to vomit, loose his belly, and make him to sweat. Truly those that are wounded or bitte with venemous beasts, if they bind broome above the wound, it will prohibit or hinder the venome from dispersing it selfe, or going any further : therefore a drink made thereof will prohibit the venome from going any nearer the heart. Some take of the roote of *Elecampaine*, *Gentian*, *Tormentill*, *Kermes berries* and broc n ; of the powder of *Ivory* and *Hartshorne*, of each halfe a dram : they doe bruise and beate all these, and infuse them for the space of foure and twenty houres in white wine and *Aqua vita* on the warm embers, and then straine it, and give the patient three or foure ounces thereof to drinke ; this provokes sweat, and infringeth the power of the poyson : and the potion following hath the same vertue.

A Potion.

Take good Mustard half an ounce, of Treacle or Mithridate the weight of a Bean, dissolve them in white wine, and a little *Aqua vita*, and let the patient drinke it, and sweat thereon with walking. You may also roast a great Onion made hollow, and filled with halfe a dram of Treacle and Vinegar under the embers ; and then straine it, and mixe the juice that is pressed out of it with the water of *Sorrell*, *Cardus Benedictus*, or any other cordiall thing, and with strong wine, and give the patient to drinke thereof to provoke sweat, and to repell the malignity. Or else take as much Garlick as the quantity of a big Nut ; of *Rue* and *Celandine*, of each twenty leaves, bruise them all in white wine and a little *Aqua vita* ; then straine it, and give the patient thereof to drink. There be some that doe drink the juice that is pressed out of *Celandine* and *Mallowes*, with three ounces of Vinegar, and halfe an ounce of the oyle of *Wall-nuts*, and then by much walking doe unburthen their stomack and belly upwards and downewards, and so are helped. When the venemous ayre hath alrea-

already crept into and infected the humors, one dram of the dried leaves of the Bay tree macerated for the space of two dayes in Vinegar and drunke, is thought to bee a most soveraigne medicine to provoke sweat, loosenesse of the belly, and vomiting.

Mathiolus in his Treatise *de Morbo Gallico* writeth, that the powder of Mercury ministred unto the patient with the juice of *Carduus Benedictus*, or with the electuary *de Gemmis*, will drive away the Pestilence before it be confirmed in the body, by provoking vomit, looseness of the belly & sweat: one dram of Calchanthum or white Copperose dissolved in Rose-water, performeth the like effect in the same disease. Some do give the patient a little quantity of the oyle of Scorpions with white wine to expel the poyson by vomit, & therewithall they anoint the region of the heart, the breast and the wrests of the hands. I think these very meet to be used often in bodies that are strong and wel exercised, because weaker medicines do evacuate little or nothing at all, but onely move the humours, whereby commeth a Feaver. When a sufficient quantity of the malignity is evacuated, then you must minister things that may strengthen the belly and stomach, and withhold the agitation or working of the humours: and such is the confection of Alkermes.

The effects of mercury & copperose against the Plague.

CHAP. XXVI.

Of many Symptomes which happen together with the Plague: and first of the paine of the head.

IF the malignity be carried into the braine, and nature be not able to expell it, it inflames not onely it, but also the membranes that cover it: which inflammation doth one while hurt, trouble, or abolish the imagination, another while the judgement, and sometimes the memory, according to the situation of the inflammation, whether it bee in the former, hinder or middle part of the head; but hereof commeth alwayes a Phrensie, with fiery rednesse of the eyes and face, and heavinesse and burning of the whole head. If this will not be amended with Clisters, and with opening the Cephalicke veine in the arme, the arteries of the temples must be opened, taking so much blood out of them, as the greatnesse of the Symptomes and the strength of the patient shall require and permit. Truly the incision that is made in opening of an arterie will close and joyne together as readily, and with as little difficulty, as the incision of a veine. And of such an incision of an artery, commeth present helpe, by reason that the tense and sharpe vapours do plentifully breath out together with the arterious blood. It were also very good to provoke a fluxe of blood at the nose, if nature be apt to exonerate herselfe that way. For, as *Hippocrates* saith, when the head is grieved, or generally aketh, if matter, water, or blood flow out at the nostrils, mouth or eares, it presently cures the disease. Such bleeding is to be provoked by strong blowing, or striving to cleanse the nose, by scratching or picking of the inner sides of the nostrils, by pricking with an horse haire, and long holding downe of the head.

The cause of phrensie in the Plague.

The benefit of opening an art. ry.

Aph. 10. §. 11. 6.

The Lord of Fontains, a Knight of the Order, when we were at Bayon, had a bleeding at the nose, which came naturally for the space of two dayes, and thereby hee was freed of a pestilent Feaver which he had before, a great sweat rising therewithall, and shortly after his Carbuncles came to suppuration, and by Gods grace he recovered his health being under my cure. If the blood doe flow out and cannot be stopped when it ought, the hands, armes, and legges must be tyed with bands, and sponges wet in Oxycrate must be put under the arme-holes, cupping-glasses must be applyed unto the dugges, the region of the liver and spleen; and you must put into the nostrils, the doune of the willow tree, or any other astringent medicine, incorporated with the haire pluckt from the flanke, belly or throat of a Hare, bole Armenicke, *Terra Sigillata*, the juice of Plantain and Knot-grasse mixed together; and furthermore the patient must be placed or laied in a coole place. But if the pain bee nothing mitigated notwithstanding all these fluxes of blood, we must come to medicines that procure sleep, whose formes are these.

A history.

To stay bleeding.

Take

Medicines to
procure sleep.

Take of green Lettuce one handfull, flowers of water Lillies and Violets, of each two pugils, one head of white Poppy bruised, of the foure cold seeds, of each two drams, of Liquorice and Raisons, of each one dram : make thereof a decoction, and in the straining dissolve one ounce and an halfe of *Diacodion* : make thereof a large potion to be given when they goe to rest. Also a Barly-creame may be prepared in the water of water-Lillies and of Sorrell, of each two ounces, adding thereto fixe or eight graines of *Opium* : of the foure cold seeds, and of white Poppy seeds, of each halfe an ounce, and let the same be boyled in broths with Lettuce and Purslaine ; also the Pils de *Cynoglossa*, *id est*, Hounds tongue may be given. Clusters that provoke sleep must be used, which may be thus prepared :

Take of Barly-water, halfe a pinte ; oyle of Violets and water-Lillies, of each two ounces ; of the water of Plantaine and Purslaine, or rather of their juices, three ounces ; of Camphire seven graines, and the whites of three egges : make thereof a Clister. The head must be fomented with Rose-vinegar, the haire being first shaven away, leaving a double cloth wet therein on the same, and often renewed. Sheepes lungs taken warme out of the bodies, may be applyed to the head, as long as they are warme. Cupping-glasses with and without scarification, may be applyed to the neck and shoulder-blades. The armes and legs must be strongly bound, being first wel rubbed to divert the sharpe vapours and humours from the head. Frontals may also be made on this manner. Take of the oyle of Roses and water-Lillies, of each two ounces, of the oyle of Poppy halfe an ounce, of *Opium* one dram, of Rose-vinegar one ounce, of Camphire halfe a dram, mixe them together. Also Nodules may be made of the flowers of Poppies, Henbane, water-Lillies, Mandrakes beaten in Rose-water with a little Vinegar, and a little Camphire, and let them be often applyed to the nostrils : for this purpose Cataplasmes also may be laid to the forehead. As, Take of the mucilage of the seeds of *Psilium*, *id est*, Flea-wort, and Quince seeds extracted in Rose-water, three ounces ; of Barly-meale foure ounces ; of the powder of Rose-leaves, the flowers of water-Lillies and Violets, of each halfe an ounce ; of the seeds of Poppies and Purslaine of each two ounces ; of the water and vinegar of Roses, of each three ounces : make thereof a Cataplasme, and apply it warme unto the head.

A Cataplasme.

Or take of the juice of Lettuce, water-Lillies, Henbane, Purslaine, of each half a pint ; of Rose-leaves in powder, the seeds of Poppy, of each halfe an ounce ; oyle of Roses three ounces ; of Vinegar two ounces ; of Barly-meale as much as shall suffice : make thereof a Cataplasme in the forme of a liquid Pultis. When the heate of the head is mitigated by these medicines, and the inflammation of the braine asswaged, wee must come unto digesting and resolving fomentations, which may disperse the matter of the vapours. But commonly in paine of the head, they doe use to bind the forehead and hinder part of the head very strongly, which in this case must be avoided.

CHAP. XXVII.

Of the heat of the Kidnies.

An ointment
for the reins.



He heat of the kidnies is tempered by anointing with *unguent refrigerans* Galen. newly made, adding therto the whites of eggs wel beaten, that so the ointment may keep moyst the longer ; let this liment be renewed every quarter of an houre, wiping away the reliques of the old. Or, *R. aq. ros. lb. β. succi plant. ʒiv. alb. ovorum iv. olei rosacei, & nenuph. an. ʒiii. aceti ros. ʒiii. misce ad usum.* When you have anointed the part, lay thereon the leaves of water-Lillies or the like cold herbs, & then presently thereupon a double linnen cloth dipped in oxycrate & wrung out againe, and often changed ; the patient shall not lye upon a feather bed, but on a quilt stuffed with the chaffe of oates, or upon a mattee with many doubled clothes or Chamelet spread thereon. To the region of the heart may in the meane time be applyed a refrigerating and alexiteriall medicine, as this which followeth.

R.

R. *ung. rosat.* ʒ iii. *olei nenupharini*, ʒ ii. *aceti ros.* & *aqua rosar.* an. ʒ i. *theriacæ*, ʒ i. *croci*, ʒ ʒ. Of these melted and mixed together make a soft ointment, which spread upon a scarlet cloth may be applyed to the region of the heart. Or, R. *theriacæ opt.* ʒ i ʒ. *succi citri acidi*, & *limonis*, an. ʒ ʒ. *coral. rub.* & *sem. rosar. rub.* an. ʒ ʒ. *capbura*, & *croci*, an. gra. iiii. let them bee all mixed together, and make an ointment or liniment.

At the head of the patient as he lies in his bed, shall be set an Ewre or cocke with a bason under it to receive the water, which by dropping may resemble raine. Let the soles of the feet and palmes of the hands be gently scratched, and the patient lye far from noise, and so at length he may fall to some rest.

The noise of dropping water draws on sleep.

CHAP. XXVIII.

Of the Eruptions and Spots, which commonly are called by the name of Purples and Tokens.

THE skinne, in pestilent feavers, is marked and variegated in divers places with spots, like unto the bitings of Fleas or Gnats, which are not alwaies simple, but many times arise in forme like unto a graine of millet.

The difference of the spots in the plague.

The more spots appeare, the better it is for the patient: they are of divers colours according to the virulency of the malignity, and condition of the matter, as red, yellow, browne, violet, or purple, blew and blacke. And because for the most part they are of a purple colour, therefore wee call them Purples. Others call them *Lenticule*, because they have the colour and forme of Lentiles. They are also called *Papiliones* (i) Butterflies, because they doe suddenly seaze or fall upon divers regions of the body, like unto winged Butterflies, sometimes the face, sometimes the armes and legges, and sometimes all the whole body; often times they doe not onely affect the upper part of the skin, but goe deeper into the flesh, specially when they proceed of matter that is grosse and adust. They doe sometimes appeare great and broad, affecting the whole arme, legge or face, like unto an *Erysipelas*: to conclude, they are divers according to the variety of the humour that offends in quality or quantity.

Their severall names, and the reasons of them.

If they are of a purple or black colour, with often swooning, and sinke in suddenly without any manifest cause, they foreshew death.

When signes of death.

The cause of the breaking out of those spots, is the working or heat of the blood, by reason of the cruelty of the venome received, or admitted. They often arise at the beginning of a pestilent feaver: many times before the breaking out of the Sore, or Borch, or Carbuncle, and many times after: but then they shew so great a corruption of the humours in the body, that neither the Sores, nor Carbuncles will suffice to receive them, and therefore they appear as forerunners of death. Sometimes they breake out alone, without a Borch or Carbuncle; which if they bee red, and have no evill symptomes joyned with them, they are not wont to prove deadly: they appeare, for the most part, on the third or fourth day of the disease, and sometimes later, and sometimes they appeare not before the patient be dead, because the working or heat of the humours being the off-spring of putrefaction, is not as yet restrained and sealed.

Wherefore then principally the putride heat, which is greatest a little before the death of the patient, drives the excremental humours, which are the matter of the spots unto the skin; or else because nature in the last conflict hath contended with some greater endeavour than before (which is common to all things that are ready to dye) a little before the instant time of death, the pestilent humour being presently driven unto the skinne; and nature thus weakened by this extreme conflict, falleth downe prostrate, and is quite overthrowne by the remnant of the matter.

Why they sometimes appeare after the death of the patient.

CHAP. XXIX.

Of the Cure of Eruptions and Spots.

They are to be
cured by dri-
ving forth.



YOU must first of all take heed lest you drive in the humour that is coming outwards with repercussives: therefore beware of cold, all purging things, Phlebotomy, and drowse or sound sleeping. For all such things doe draw the humours inwardly, and work contrary to nature. But it is better to provoke the motion of nature outwardly, by applying of drawing medicines outwardly and ministring medicines to provoke sweat inwardly, for otherwise by repelling & stopping the matter of the eruptions, there will bee great danger lest the heart be oppressed with the abundance of the venome flowing back; or else by turning into the belly, it inferres a mortall bloody fluxe: which discomfortities that they may bee avoided, I have thought good to set downe this remedy, whose efficacy I have knowne and proved many times, and on divers persons, when by reason of the weaknesse of the expulsive faculty, and the thicknesse of the skinne, the matter of the spots cannot breake forth, but is constrained to lye under the skin, lifting it up into bunches and knobs.

The indication
of curing taken
from the like.

I was brought unto the invention of this remedy, by comparison of the like. For when I understood that the essence of the French pockes (and likewise of the pestilence) consisted in a certain hidden virulency, and venomous quality, I soon descended unto that opinion, that even as by the anointing of the body with the unguent compounded of Quick-silver, the grosse and clammy humors which are fixed in the bones, and unmoveable, are dissolved, relaxed, and drawne from the center into the superficial parts of the body, by strengthening and stirring up the expulsive faculty, and evacuated by sweating and fluxing at the mouth, that so it should come to passe in pestilent Feavers, that nature being strengthened with the same kinde of unction, might unloade her selfe of some portion of the venomous and pestilent humour, by opening the pores and passages, and letting it breake forth into spots and pustles, and into all kind of eruptions. Therefore I have anointed many in whom nature seemed to make passage for the venomous matter very slowly, first loosing their belly with a Clister, and then giving them Treacle water to drinke, which might defend the vitall faculty of the heart, but yet not distend the stomach, as though they had had the French pockes, and I obtained my expected purpose: in stead of the Treacle water you may use the decoction of *Gnajakum*, which doth heat, dry, provoke sweat, and repell putrefaction, adding thereto also vinegar, that by the subtlety thereof, it may pierce the better, and withstand the putrefaction. This is the description of the unguent.

An ointment to
draw them
forth when as
they appear too
slowly.


Take of Hogs-greace, one pound, boyle it a little with the leaves of Sage, Time, Rosemary, of each halfe an handfull, straine it, and in the straining extinguish five ounces of Quick-silver, which hath bin first boyled in vinegar with the forementioned herbs; of *Sal Nitrum*, three drammes; the yelks of three egges boyled untill they be hard, of Treacle and Mithridate, of each halfe an ounce; of Venice Turpentine, oyle of Scorpions and Bayes, of each three ounces; incorporate them altogether in a mortar, and make thereof an unguent, wherewith annoint the patients arme-holes and groines, avoyding the parts that belong to the head, breast and back-bone: then let him bee laid in his bed and covered warme, and let him sweat there for the space of two houres, and then let his body bee wiped and cleansed, and if it may be let him be laid in another bed, and there let him be refreshed with the broth of the decoction of a Capon, rear egges, and with such like meats of good juice that are easie to be concocted and digested; let him be anointed the second and third day, unlesse the spots appeare before.

If the patient fluxe at the mouth, it must not bee stopped: when the spots and pustles doe all appeare, and the patient hath made an end of sweating, it shall be convenient to use diureticke medicines, for by these the remnant of the matter of the spots, which happely could not all breath forth, may easly be purged and avoyded by urine.

If any noble or gentlemen refuse to be anointed with this unguent, let them be enclosed in the body of a Mule or Horse that is newly killed, and when that is cold, let them bee layed in another, untill the pustles and eruptions doe breake forth, being drawne by that naturall heat. For so *Matthiolus* writeth that *Valentinus*, the sonne of Pope *Alexander* the sixt, was delivered from the danger of most deadly poyson which he had drunke. *In promm. lib. 41
Diosc.*

CHAP. XXX.

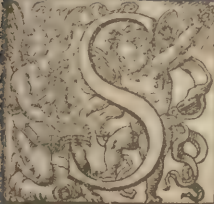
Of a pestilent Bubo, or Plague-fore.

 Pestilent *Bubo* is a tumor at the beginning long and moveable, and in the state, and full perfection copped, and with a sharp head, unmoveable and fixed deeply in the glandules, or kernells; by which the braine exonerates it selfe of the venemous and pestiferous matter into the kernells that are behind the eares, and in the neck: the heart, into those that are in the arm-holes; and the liver, into those that are in the groine; that is, when all the matter is grosse and clammy, so that it cannot be drawn out by spots and pustles breaking out on the skinne; and so the matter of a Carbuncle is sharpe, and so fervent, that it maketh an *Eschar* on the place where it is fixed. In the beginning, while the *Bubo* is breeding, it maketh the patient to feele, as it were, a cord or rope stretched in the place, or a hardened nerve with pricking pain: & shortly after the matter is raised up as it were into a knob, and by little and little it groweth bigger, and is enflamed, these accidents before mentioned accompanying it. If the tumour bered, and encrease by little and little, it is a good and salutary signe: but if it be livid or black, and come very slowly unto his just bignesse, it is a deadly signe: It is also a deadly signe if it encrease suddenly, and come unto his just bignesse as it were with a swift violence, and as in a moment, have all the symptomes in the highest excessse, as paine, swelling and burning. Buboes or Sores appeare sometimes of a naturall colour, like unto the skinne, and in all other things like unto an oedematous tumour, which notwithstanding will suddenly bring the patient to destruction, like those that are livide and black, wherefore it is not good to trust too much to those kindes of tumours. *What a pestilent Bubo is.*

The signes of Bubo's salutary and deadly.

CHAP. XXXI.

Of the cure of Buboes, or Plague-sores.

 O soon as the Bubo appeares, apply a Cupping-glasse with a great flame unto it, unlesse it be that kinde of Bubo which will suddenly have all the accidents of burning and swelling in the highest nature; but first the skinne must be anointed with the oyle of lillies, that so it being made more loose, the Cupping-glasse may draw the stronger and more powerfully; it ought to sticke to the part for the space of a quarter of an houre, & be renewed and applyed again every three quarters of an houre, for so at length the venom shall be the better drawn forth from any noble part that is weak, and the work of suppuration or resolution, whichsoever nature hath assaied, will the better and sooner bee absolved and perfected: which may bee also done by the application of the following ointment. *The use of cupping glasses in curing a Bubo.*

Take of *Unguentum Dialthea* one ounce and a halfe, oile of Scorpions halfe an ounce; of *Mithridate* dissolved in *Aquavita*, halfe a dramme; this liniment will very well relaxe and loosen the skin, open the pores thereof, & spend forth portion of that matter which the Cupping-glasse hath drawne thither: in stead thereof mollifying fomentations may bee made, and other drawing and suppurating medicines, which shall be described hereafter.

A Vesicatory applied in a meet place below the Bubo profits them very much

Cccc

but

but not above; as for example. If the Bubo be in the throat, the Vesicatory must be applied unto the shoulder-blade on the same side; if it be in the arme-holes, it must be applied in the midst of the arme, or of the shoulder-bone, on the inner side: if in the groin, in the midst of the thigh on the inner side, that by the double passage that is open for to draw out the matter, the part wherein the venome is gathered together, may be the better exonerated.

Spurge, Crow-foot, Arsemart, Beare-foot, Briony, the middle barke of Travelers-joy, the rindes of Mullet, *Flammula* or upright Virgins-bower, are fit for raising blisters. If you cannot come by those simple medicines, you may apply this which followeth, which may be prepared at all times.

A compound
vesicatory.

Why vesicato-
ries are better
than cauteries
in a pestilent
Bubo.

Strong drawing
cataplasmes.

Take *Cantharides*, Pepper, *Euphorbium*, Pellitory of Spain, of each halfe a dram; of soure leaven, two drammes; of Mustard one dramme, and a little Vinegar; the vinegar is added thereto to withhold or restrain the vehemency of the *Cantharides*; but in want of this medicine it shall suffice to drop scalding oyle or water, or a burning candle, or to lay a burning coale on the place: for so you may raise blisters, which must presently be cut away, and you must see that you keep the ulcers open & flowing as long as you can, by applying the leaves of red coleworts, Beetes, or Ivie dipped in warme water, and anointed with oyle or fresh butter. Some apply Cauteries, but Vesicatories work with more speed: for before the Eschar of the Cauteries will fall away, the patient may dye: therefore the ulcers that are made with Vesicatories will suffice to evacuate the pestilent venome, because that doth worke rather by its quality than its quantity. Let the abscesse bee fomented as is shewed before: and then let the medicine following, which hath vertue to draw, be applied.

Fill a great onion, being hollowed, with Treacle and the leaves of Rue, then roast it under the hot Embers, beat it with a little Leaven, and a little Swines grease, and so apply it warme unto the abscesse or sore; let it be changed every sixe houres. Or Take the roots of Marsh-mallows and Lillies, of each halfe a pound; of Line, Foenugreek, and Mustard seeds, of each halfe an ounce; of Treacle one dramme; ten Figges, and as much Hogges grease as shall suffice: make thereof a cataplasme according to Art. Or, take of Onions and Garlicke roasted in the embers, of each three ounces: bruise them with one ounce of sower leaven, adding thereto *Unguentum Basilicon*, one ounce; Treacle one dramme; Mithridate halfe a dramme; of old Hogs greace one ounce; of *Cantharides* in powder one scruple; of Pigeons dung two drams: beat them and mixe them together into the forme of a cataplasme. Hereunto old Rennet is very profitable, for it is hot, and therefore attractive, being mixed with old Leaven and *Basilicon*: you ought to use these untill the abscesse be growne unto its full ripenesse and bignesse; but if presently after the beginning there bee great inflammation, with sharpe paine, as it often happeneth, especially when the abscesses be of the kinde of Carbuncles, wee must abstaine from those remedies that are hot and attractive, and also from those that are very emplasticke and clammy; because they doe altogether close the pores of the skin, or because they resolve the thinner part of the collected matter, which if it might remain, would bring the other sooner to suppuration: or else because they may perchance draw more quantity of the hot matter than the part can beare, whereof commeth rather corruption than maturation: and last of all because they encrease the feaver and pain, which inferreth danger of a convulsion or mortall Gangrene. Therefore in such a case it is best to use cold and temperate locall medicines, as the leaves of Henbane and Sorrell roasted under the coales, *Galeus pultis*, and such like.

There are many that for feare of death, have with their owne hands pulled away the Bubo with a paire of Smithes Pincers: others have digged the flesh round about it, and so gotten it wholly out. And to conclude others have become so mad, that they have thrust an hot iron into it with their owne hand, that the venome might have a passage forth: of all which I doe not allow one; for such abscesses doe not come from without, as the bitings of virulent beasts, but from within, and moreover because pain is by these means encreased, and the humour is made more maligne and fierce. Therefore I think it sufficient to use medicines that relaxe, open the pores of the skinne, and digest portion of the venome by transpiration, as are these that follow.

Against such as
cut away plague
sores.

follow. Take the roots of Marib-mallowes and Lillies, of each fixe ounces; of Chamomill and Melilote flowers, of each halfe a handfull; of Linseeds halfe an ounce; of the leaves of Rue halfe a handfull: boyle them and straine them, dip sponges in the straining, and therewith let the tumour bee fomented a long time. Or, Take the crum of hot bread, and sprinkle it with Treacle-water, or with *aqua visa*, and Cowes milk or Goates milke, and the yolks of three egges, put them all one stupes or flaxe, and apply them warme unto the place. Or, Take of soure Rie leaven foure ounces; of *Basilicon* two ounces; three yolkes of egges; oyle of Lillies two ounces; Treacle one dram: let it be received on stupes, and applyed in like manner. Or, Take of *Dia-chylon* and *Basilicon*, of each two ounces; oyle of Lillies one ounce and an halfe: let them be melted and mixed together, and let it be applyed as is abovesaid. When you see, feele and know, according to reason, that the *Bubo* is come to perfect suppuration, it must be opened with an incision knife, or an actuall or potentiall Cautery, but it is best to be done with a potentiall Cautery, unlesse that happely there be great inflammation, because it doth draw the venome from beneath unto the superficiall parts, and maketh a larger orifice for the matter that is contained therein: neither must it be looked for, that nature should open it of her selfe, for then it were danger that lest while nature doth worke slowly, a venemous vapour should bee stirred up, which striking the heart by the arteries, the braine by the nerves, and the liver by the veines, should cause a new increase of the venemous infection. For feare whereof there be some that will not expect the perfect maturation and suppuration, but as it were in the midst of the crudity and maturity will make an orifice for it to passe forth at: yet if it be done before the tumour be at his perfect maturity, paine, a Fever, and all accidents are stirred up and enraged, whereof commeth a maligne ulcer that often degenerats into a Gangrene. For the most part about the tenth or eleventh day the work of suppuration seemeth perfected and finished; but it may be sooner or later by reason of the application of medicines, the condition of the matter, and state of the part: when the matter commeth forth, you must yet use suppurative and mollifying medicines, to maturate the remains thereof, in the mean while cleansing the ulcer by putting mundificatives into it, as we shall declare in the cure of Carbuncles. But if the tumour seeme to sinke in or hide it selfe again, it must be revoked and procured to come forth againe, by applying of Cupping-glasses with scarification, and with sharpe medicines, yea, and with Cauteries both actuall and potentiall.

A digestive fomentation.

An anodine Cataplasme.

Why it is best to open a Plague-sore with a potentiall cautery.

How to draw forth a sore that seems to goe in againe.

When the Cauteries are applyed, it shall be very good to apply a vesicatory a little below it, that there may be some passage open for the venome while the Eschar is in falling away. For so they that are troubled with the French Pocks, so long as they have open and flowing ulcers, so long are they voyd of any paine that is worth the speaking of; which ulcers being closed and cicatrized, they doe presently complain of great paine. If you suspect that the *Bubo* is more maligne by reason that it is of a Greene, or blacke and inflamed colour, as are those that come of a melancholy humour by adustion, turned into a grosse and rebellious melancholy humour, so that by the more copious influx thereof into the part, there is danger of a gangrene and mortification; then the places about the abscesse must bee armed with repercussives, but not the abscesse it selfe: and this may be the forme of the repercussives: Take of the juice of house-leeke, Purslaine, Sorrell, Night-shade, of each two ounces, of Vinegar one ounce, the whites of three egges, of oyle of Roses and water-Lillies, of each two ounces and a halfe: stirre them together, and apply it about the *Bubo*, and renew it often: or boyle a Pomgranate in vinegar, beat it with *Unguentum Rosatum*, or *Populeon* newly made, and apply it as is aforesaid. If these things doe not stop the influx of other humours, the abscesse it selfe and the places about it must bee scarified round about, if the part will permit it; that the part exonerated of portion of the venome may not stand in danger of the extinction of the proper and naturall heat, by the greater quantity and malignity of the humours that flow unto it. In scarrifying you must have care of the great vessels, for feare of an irreputable fluxe of blood, which in this case is very hard to bee stayed or resisted; both because the part it selfe is greatly inflamed, and the humour very fierce; for the expulsion whereof, nature, carefull for the preservation of the part and all the body

When repercussives may be applyed.

Why too much bleeding is to be feared.

besides, seemeth to labour and worke. But yet you must suffer so much of the bloud & humour to flow out as the patient is able to abide without the losse of his strength. Moreover, you may spend forth the superfluous portion of the malignity, with relaxing, mollifying and resolving fomentations: as, Take the roots of Marsh-Mallows, Lillies and Elicampaine, of each one pound, of Linseeds and Fænugreek, of each one ounce, of Bennell-seeds and Anise-seeds, of each halfe an ounce, of the leaves of Rue, Sage, Rosemary, of each one handfull, of Chamomill and Melilote flowers, of each three handfuls; boyle them all together, and make thereof a decoction for a fomentation; use it with a sponge according to Art. Also after the aforesaid scarification, wee may put Hens, or Turkie that lay eggs (which therefore have their fundaments more wide and open, and for the same purpose put a little salt into their fundaments) upon the sharpe top of the *Bubo*, that by shutting their bills at severall times they may draw and suck the venome into their bodies, farre more strongly and better than cupping-glasses, because they are endued with a naturall property against poyson, for they eat and concoct Toads, Efts, and such like virulent beasts: when one hen is killed with the poyson that she hath drawne into her body, you must apply another, and then the third, fourth, fift and sixt within the space of half an houre. There be some that will rather cut them, or else use whelps cut asunder in the midst, and applyed warme unto the place, that by the heate of the creature that is yet scarce dead, portion of the venome may be dissipated and exhaled. But if neverthelesse there be any feare of a Gangrene at hand, you must cut the flesh with a deeper scarification, not onely avoyding the greater vessels, but also the nerves, for feare of convulsion: and after the scarification and a sufficient flux of bloud, you must wash it with *Ægyptiacum*, Treacle and Mithridate dissolved in sea-water, *Aqua vite* and Vinegar. For such a lotion hath vertue to stay putrefaction, repell the venome, and prohibite the bloud from concretion: but if the Gangrene cannot be avoyded so, cauteries may be applied to the part: especially actual, because they do more effectually repel the force of the poison, & strengthen the part. Presently after the impression of the hot iron, the eschar must bee cut away even unto the quicke flesh, that the venemous vapours and the humours may have a free passage forth, for it is not to bee looked for that they will come forth of themselves. With these inunctions they are wont to hasten the falling away of the Eschar. Take of the mucilage of Marsh-mallows and Linseeds, of each two ounces, fresh butter or Hogs-grease one ounce, the yolks of three egges, incorporate them together, and make thereof an ointment: butter, Swines grease, oyle of Roses, with the yolks of egges, performe the selfe same thing. When the Eschar is fallen away, we must use digestives. As take of the juice of Plantaine, water-Betrony, and Smallage, of each three ounces, hony of Roses foure ounces, Venice Turpentine five ounces, Barly-flower three drams, Aloes two drams, oyle of Roses foure ounces, Treacle halfe a dram, make a mundificative according to Art. Or, Take Venice Turpentine foure ounces, Syrupe of dried Roses and Wormewood, of each one ounce, of the powder of Aloes, Mastick, Myrrhe, Barly-flower, of each one dram, of Mithridate halfe an ounce, incorporate them together. This unguent that followeth is very meet for putrefied and corroding ulcers: Take red Orpiment one ounce, of unquenched Lime, burnt Alome, Pomgranate pills, of each sixe drams, of *Olibanum*, Galis, of each two drams, of Waxe and Oile as much as shall suffice, make thereof an unguent. This doth mundifie strongly, consume putrefied flesh, and dry up virulent humidities that engender Gangrenes. But there is not a more excellent unguent than *Ægyptiacum* encreased in strength, for besides many other vertues that it hath, it doth consume and waste the proud flesh, for there is neither oyle nor waxe that goeth into the composition thereof, with which things the vertue of sharpe medicines convenient for such ulcers, is delayed, and as it were dulled and hindered from their perfect operation so long as the ulcer is kept open. There have bin many that being diseased with this disease, have had much matter & venemous filth come out at their abscesses, so that it seemed sufficient, and they have bin thought wel recovered, yet have they dyed suddenly. In the mean while when these things are in doing, cordial medicines are not to be omitted to strengthen the heart. And purgations must be renewed at certaine seasons, that nature may be every way unloaded of the burthen of the venenate humors.

Liximents to
hasten the fall-
ling away of the
Eschar.

Against eating
ulcers.

The praise of
Ægyptiacum.

CHAP. XXXII.

Of the Nature, Causes and Signes of a pestilent Carbuncle.

Pestilent Carbuncle is a small tumour, or rather a malignant pustle, hot and raging, consisting of bloud vitiated by the corruption of the proper substance. It often commeth to passe through the occasion of this untameable malignity, that the Carbuncle cannot be governed or contained within the dominion of nature. In the beginning it is scarce so

What a Carbuncle is.

The signes of a Carbuncle.

When so called.

Symptomes of Carbuncles.

How the matter of a Bubo & Carbuncle differ.

big as a seed or grain of Millet or a Pease, sticking firmly unto the part and immovable, so that the skinne cannot be pulled from the flesh; but shortly after it encreaseth like unto a *Bubo* unto a round and sharpe head, with great heat, pricking paine, as if it were with needles, burning and intolerable, especially a little before night, and while the meate is in concocting, more than when it is perfectly concocted. In the midst thereof appeareth a bladder puffed up and filled with sanious matter. If you cut this bladder, you shall finde the flesh under it parched, burned and blacke, as if there had bin a burning cole layed there, whereby it seemeth that it took the name of Carbuncle; but the flesh that is about the place is like a Rainebow, of divers colours, as red, darke, green, purple, livid, and black; but yet alwaies with a shining blacknesse, like unto stone pitch, or like unto the true precious stone which they call a Carbuncle, whereof some also say it tooke the name. Some call it a Naile, because it infereth like paine as a naile driven into the flesh. There are many Carbuncles which take their beginning with a crusty ulcer without a pustle, like to the burning of a hot iron: and these are of a blacke colour, they encrease quickly, according to the condition of the matter whereof they are made. All pestilent Carbuncles have a Fever joyned with them, and the grieved part seemeth to be so heaue, as if it were covered or pressed with lead tyed hard with a ligature: there commeth mortall swoonings, faintings, tossing, turning, idle talking, raging, gangrenes and mortifications, not onely to the part, but also to the whole bodie, by reason (as I thinke) of the oppression of the spirits of the part, & the suffocation of the naturall heat, as we see also in many that have a pestilent *Bubo*. For a *Bubo* and Carbuncle are tumours of a near affinity, so that the one doth scarce come without the other, consisting of one kinde of matter, unlesse that which maketh the *Bubo* is more grosse and clammy, and that which causeth the Carbuncle more sharpe, burning and raging, by reason of its greater subtilty, so that it maketh an Eschar on the place where it is, as we noted before.

CHAP. XXXIII.

What Prognosticks may bee made in pestilent Buboes and Carbuncles.

Some having the Pestilence have but one Carbuncle, and some more in divers parts of their body, and in many it happeneth that they have the *Bubo* and Carbuncle before they have any Feaver; which giveth better hope of health, if there be no other malignant accident therewith: for it is a signe that nature is the victor, and hath gotten the upper hand, which excluded the pestilent venome before it could come to assault the heart. But if a Carbuncle and *Bubo* come after the Feaver, it is mortall; for it is a token that the heart is affected, moved and incensed with the furious rage of the venome; whereof presently commeth a feaverish heat or burning, and corruption of the humours, sent as it were from the center unto the superficies of the body. It is a good signe when the patients minde is not troubled from the beginning untill the seventh day; but when the *Bubo* or Carbuncle sinketh downe againe shortly after that it is risen, it is a mortall signe, especially if ill accidents follow it. If after they are brought to suppuration they presently waxe dry without any reason thereof, it is an ill signe: Those Carbuncles that are generated of bloud have a greater Eschar than those that are

Why it is deadly to have a Carbuncle come after the Feaver.

Huge pestilent
Abscesses com-
monly deadly.

Deadly Car-
buncles.

A history.

made of choler, because that blood is of a more grosse consistence, and therefore occupieth a greater roome in the flesh: contrariwise, a cholerick humour is more small in quantity and thinne, and it taketh little roome in the upper part of the flesh onely, as you may see in an *Erysipelas*. And I have seene Carbuncles whose Eschars were as broad and as large as halfe the backe: also I have seene others, which going up by the shoulders to the throat, did so eate away the flesh that was under them, that the rough artery or wind-pipe might be seen bare, when the Eschar was fallen away: I had once a Carbuncle which was in the midst of my belly, so that when the Eschar was fallen away, I might very plainly see the *Piritoneum* or Rim: & the cicatrice that remaineth is as broad as my hand: but they doe not spread themselves so far without the great danger or death of the patient. There are also some Carbuncles which beginning at the parts under the chin, disperse themselves by little & little unto the pattell bones, and so strangle the patient. So in many, the *Buboes* in the groin arise above a great part of the muscles of the *Epigastrium*. Truly of those abscesses that are so large & great in quantity, & so terrible to be seen, there is great danger of death to the patient, or at least to the grieved part. For after the consolidation, the part remaineth as if it were leprous, which abolisheth the action of the part, as I have seene in many. Oftentimes also the corruption of the matter is so great, that the flesh leaveth the bones bare: but Carbuncles often leave the joints and ligaments quite resolved through the occasion of the moisture that is soaked & sunk in unto them; for they often cast out putrefied & virulent sanious matter: whereby eating and creeping ulcers are bred, many blisters & pustles arising up in the parts round about it, which shortly breaking into one, make a great ulcer. These come very seldome and slowly unto suppuration, or at least to cast out laudible matter, especially if thy have their original of choler, because the matter is sooner burned with heat, than suppurated. Therefore then, if they can bee brought to suppuration by no medicines, if the tumour still remaine blacke, if when they are opened nothing at all, or else a very little sharpe moisture doth come forth, they are altogether mortall: and there is scarce one of a thousand who hath these accidents that recovereth health: dispersed small blisters, coming of vapours stirred up by the matter that is under the skinne, and are there stayed and kept from passage forth, doe not necessarily fore-shew death in Carbuncles. But if the part be swolne or puffed up, if it be of a green or black colour, and if it feele neither pricking nor burning, it is a signe of a mortall Gangrene. *Buboes* or Carbuncles seldome or never come without a Feaver: but the Feaver is more vehement when they are in the emunctories, or nervous parts, than when they are in the fleshy parts, yet it is lesse, and all Symptomes are lesse, and more tolerable in a man that is strong and of a good temperature: Carbuncles not onely affect the outward, but also the inward parts, and oftentimes both together. If the heart be vexed in such sort with a Carbuncle that nothing thereof appeareth forth on the superficial parts, all hope of life is past, and those dye suddenly, eating, drinking or walking, and not thinking any thing of death. If the Carbuncle be in the middriffe or lungs, they are soon suffocated: If it be in the braine, the patient becommeth frantick, and so dyeth. If it be in the parts appointed for the passage of the urine, they dye of the suppression of their water, as it happened in the Queene mothers waiting maide at the Castle of *Rossilion*, of whom I spake before. If it be in the stomacke, it inferreth the accidents that are shewed in this history following.

While I was Surgeon in the Hospitall of Paris, a young and strong Monke of the order of *St. Victor*, being overseer of the women that kept the sicke people of that place, fell into a continuall Feaver very suddenly with his tongue blacke, dry, rough, (by reason of the putrefied and corrupted humours, and the vapours rising from the whole body unto that place) and hanging out like unto an hounds, with unquenchable thirst, often swooning and desire to vomit. He had convulsions over all his body through the vehemency and malignity of the disease, and so hee dyed the third day: wherefore those that kept the sicke people in the Hospitall, thought that he had been poysoned, for the certaine knowledge whereof the Governours of the Hospitall commanded his body to be opened.

I therefore calling to mee a Physician and Surgeon, wee found in the bottome of his

his stomack a print or impression, as if it had been made with an hot Iron or potenti-
all Cauterie, with an Eschar or crust as broad as ones naile, all the rest of his sto-
mack was greatly contracted and shrunke up together, and as it were horny; which
wee considering, and especially the Eschar which was deepe in the substance of the
stomacke, we all said with one voice that he was poysoned with Sublimate or Arse-
nick. But behold while I was sowing up his belly, I perceived many blacke spots
dispersed diversly throughout the skin: then I asked my company what they thought
of those spots; truely (said I) it seemeth unto me that they are like unto the purple
spots or markes that are in the pestilence. The Physician and the Chirurghion deni-
ed it, and said that they were the bitings of fleas. But I perswaded them to consider
the number of them over all the whole body, and also their great depth and depres-
sion into the flesh; for when we had thrust needles deep into the flesh in the midst
of them, and so cut away the flesh about the needle, we found the flesh about the nee-
dle to be blacke: moreover his nostrils, nailes and eares were livid, and all the con-
stitution of his body was contrary, and far unlike to the bodies of those that died of
other sicknesses or diseases. Also it was credibly reported unto us by those that kept
him, that his face was so altered a little before he died, that his familiar friends could
hardly know him. Wee perswaded by these proofes, revoked our former opinion
and sentence, and made a certificate to bee sent unto the Governours and Masters of
the Hospitall, setting our hands and seales unto it, to certifie them that hee died of a
pestilent Carbuncle.

How to distin-
guish purple
spots from flea-
bitings.

CHAP. XXXIIII.

Of the cure of a pestilent Carbuncle.

BY the forenamed signes of a pestilent Carbuncle, and especially by the
bitternesse of the paine, malignity of the venomous matter, and by the
burning Feaver that is therewithall annexed, I think it manifest, that
very hot, emplastick, and drawing medicines should not bee applied to
this kind of tumour; because they prohibite or hinder the exhalation,
or waisting forth of the venenate malignity; because that by stopping the pores of
the skinne, they increase and cause a greater heat in the part than there was before.
Therefore it is better to use resolving medicines, which may assuage heate, and re-
solve the pores of the skinne. Therefore first the place must be fomented with wa-
ter and oyle mixed together, wherein a little Treacle hath beene dissolved, leaving
thereon stupes wet therein: you may also use the decoction of Mallowes, the roots
of Lillies, Linseeds, Figges, with oile of *Hypericon*, for to make the skinne thin, and
to draw forth the matter; and the day following you must apply the Cataplasme
following.

Why Empla-
stick, very hot,
and great draw-
ers are not good
for a carbuncle.

Take the leaves of Sorrell and Henbane, rost them under the hot ashes; afterwards
beate them with foure yolks of egges, two drams of Treacle, oyle of Lillies, three
ounces, Barly-meale as much as shall suffice: make thereof a Cataplasme in the form
of a liquid pultis; this asswageth heat, and furthereth suppuration. Or, Take the roots
of Marsh-mallowes and Lillies, of each foure ounces, Linseeds halfe an ounce, boyle
them, beat them, and then straine them through a sarse, adding thereto of fresh but-
ter one ounce and an halfe, of Mithridate one dramme; of Barly-meale as much as
shall suffice: make thereof a Cataplasme according to Art: those Cataplasmes that
follow are most effectually to draw the venomous matter forth, and to make a perfect
suppuration, especially when the fluxe of the matter is not so great, but that the part
may beare it. Take the roots of white Lillies, Onions, Leaven, of each halfe an ounce;
Mustard-seeds, Pidgeons dung, Sope, of each one dram; sixe snailles in their shels; of
fine Sugar, Treacle and Mithridate, of each half a dram; beate them all together, and
incorporate them with the yolks of eggs, make therof a Cataplasme, & apply it warm.
Or, Take the yolkes of sixe eggs; of salt poudered one ounce; of oyle of Lillies and
Treacle, of each halfe a dramme; Barly-meale as much as shall suffice: make there-
of

A Cataplasme
for a pestilent
Carbuncle.

Another.

Other Cata-
plasmes.

The effect of
Scabious against
a pestilent Car-
buncle.

A Radish root
drawes out the
venome power-
fully.

The top of a
Carbuncle
when, why and
with what to be
burned.

The falling of
the Eschar pro-
mote health.

A twofold in-
dication.

of a Cataplasme. Take of ordinary *Diachylon* foure ounces; of *Unguentum Basilicon* two ounces; oyle of Violets halfe an ounce: make thereof a medicine. Many ancient Professors greatly commend Scabious ground or brayed betweene two stones, and mixed with old hogs grease, the yolkes of eggs, and a little salt; for it will cause suppuration in Carbuncles: also an egge mixed with Barly-meale, and oyle of Violets doth mitigate paine and suppurate. A Radish root cut in slices, and so the slices laid one after one unto a Carbuncle or pestilent tumour, doth mightily draw out the poyson. The juice of Colts foote doth extinguish the heat of Carbuncles: the herbe called Divels, bit being bruised, worketh the like effect: I have often used the medicine following unto the heat of Carbuncles, with very good successe; it doth also assuage paine and cause suppuration. Take of the foot scraped from a chimney foure ounces, of common salt two ounces, beate them into small powder, adding thereto the yolkes of two egges, and stirre them well together untill it come to have the consistence of a pultis, and let it bee applyed warme unto the Carbuncle. In the beginning the point or head of the Carbuncle must bee burned, if it bee blacke, by dropping thereinto scalding hot oyle, or *Aqua fortis*: for by such a burning the venome is suffocated as touched by lightening, and the paine is much lessened, as I have proved oftentimes: neither is it to bee feared lest that this burning should bee too painfull, for it toucheth nothing but the point of the Carbuncle, which by reason of the Eschar that is there, is voyd of sense. After this burning, you must goe forward with the former described medicines, untill the Eschar seemeth to separate it selfe from the flesh round about it, which is a token of the patients recovery, for it signifieth that nature is strong and able to resist the poyson. After the fall of the Eschar you must use gentle mundificatives, as those which we have prescribed in a pestilent *Bubo*, not omitting sometimes the use of suppurative and mollifying medicines, that while the grosse matter is cleansed, that which is as yet crude may bee brought to suppuration; for then the indication is twofold, the one to suppurate that which remaines as yet crude and raw in the part, and the other to cleanse that which remaines concocted and perfectly digested in the ulcer.

CHAP. XXXV.

Of the itching and inflammation happening in pestilent ulcers, and how to cicatrize them.

Why the adja-
cent parts are
troubled with
itching.

A fomentation
for this itch.

Why these ul-
cers are hard to
be cicatrized.

Two sorts of E-
pulis.

THE parts adjoyning to a pestilent ulcer oft-times are superficially excoriated by reason of ulcerous pustles, which here and there with burning and great itching pricke and vellicate the part. The cause may happen either externally or internally; internally by a thin and biting *sanies*, which sweating from the ulcer, moystens the neighbouring parts. But externally by the constipation of the pores of the skinne induced by the continuall application of medicines. To remedy this, the place must bee fomented with discussing and relaxing things, as *aqua fortis*, which the Gold-smithes have used for separating of mettals, a lome water, the water of Lime, Brine and the like. But ulcers left by Carbuncles and pestilent *Buboes*, are difficultly cicatrized by reason of the corroding *sanies*, proceeding from the cholericke, or phlegmaticke and salt blood, which being in fault by the corruption of the whole substance causeth the abscesse. Besides, such ulcers are commonly round, and therefore more hard to be cicatrized, for that the quittance hath no free passage forth; so the *sanies*, of its owne nature acride and corroding, doth by delay acquire greater acrimony and intrositie, so that by its burning touch dissolving the adjacent flesh, it hinders the conjunction and union of the lips of the ulcer; but in the interim the lips of the ulcer become callous, which, unlesse they be helped by cutting, or eating medicines, the ulcer cannot be healed, for that by their density they hinder the sweating out of a sufficient quantity of the dewy glew to heale up the ulcer. Now the ulcer being plained and brought equall to the other flesh, we must use Epulis, that is, such things as have a faculty to cicatrize ulcers by


by condensing and hardening the surface of the flesh, of these there are two kinds ; for some without much biting bind and dry, such are pomgranate pils, oake barke, Tutia, litharge, burnt bones, scales of brasfe, galls, cypresse nuts, *Minium*, antimony, bole armenicke, the burnt and washed shels of oysters, Lime nine times washed, and many metalline things. Others are next to these, by which proud flesh is consumed, but such must be sparingly used : of this kind is washed Vitrioll, burnt Alome, which excelleth other Epuloticks, by reason of the excellent drying and astringent faculty consolidating the flesh, which by being moistened by an excrementitious humour, growes lanke. For that the scarre which is made, is commonly unsightly in this kind of ulcers, as red, livide, blacke, swolne, rough, by reason of the great adustion imprinted in the part, as by a burning coale, therefore I have thought good here to set down some means by which this deformity may be corrected or amended. If the scarre be too big or high, it shall be plained by making convenient ligation and strait binding to the part a plate of lead rubbed over with quicksilver ; but you may whiten it by anointing it with Lime nine times washed (that so it may bee more gentle and lose the acrimony) and incorporated with oile of Roses. Some take two pound of Tartar or Argole, burne it, and then powder it, put it in a cloth, and so let it hang in a moyst vault or cellar, and set a vessell under it to receive the dropping liquor, which is good to be rubbed for a good space, upon the scarre. The same faculty is thought to be in that moysture of eggs which sweats through the shel, whilest they are roasted at the coals; as also unguent. citrinum, and Emplast. de cerussa newly made: The three following compositions are much approved. *Rx. Axungia suilla novies lota in aceto acerrimo ℥iv. cinab. succi titri, & alum. usti, an. ℥B. sulphur. vivi ignem hand experti, ℥ii. caph. ℥ii. fiat pulvis*; then let them all be incorporated together, and make an ointment; it attenuates the skin and cleanseth spots. *Rx. olei hyos. olei semin. cucurb. an. ℥i. olei tartar. ℥B. cera alb. ℥iii. liquefiant simul lento igne, deinde adde spermat. ceti ℥vi. removeantur predicta ab igne donec infrigid. postea adde troch. alb. Rhasis pul. ℥iii. caph. ℥i. tandem cum mali cirei succo omnia diligenter commisce, fiat linmentum.* Or else, *Rx. rad. serpent. ℥i. bulliat in aq. com. ℥bi. ad demid. deinde adde sulph. vivi ignem non experti, & alum. crudi. pulveris. an. ℥iB. colent. predict. & addatur caph. ℥i. succi hyoscyami ℥iB.* Let this medicine be kept in a lead or glasse vessell, and when you would use it, dip linnen clothes therein, and lay them to the part. You may also use these medicines against the rednesse of the face, and you may fetch them off in the morning by washing the face with warme water and bran.

Remedies against the deformity of scarres.

Ointments to attenuate and take away scars.

CHAP. XXXVI.

Of sundry kinds of Evacuations, and first of sweating and vomiting.

 He pestilent malignity is not onely evacuated and sent forth by the eruption of pustles and spots, but also by sweat, vomit, bleeding at nose, at the hæmorrhoids, by the courses, a fluxe of the belly, and other wayes, so that nature by every kind of excretion may be freed from the deadly poyson, especially that which is not as yet arrived at the heart. But chiefe regard must be had to the inclination of nature, and wee must attend what way it chiefly aimes at, and what kind of excretion it affects. Yet such evacuations are not alwayes criticall, but usually symptomaticall, for that oft-times nature is so irritated by the untameable malignity of the matter, that it can no way digest it, but is forced by any meanes to send it away crude as it is. Wherefore if nature may seeme by the moystnesse of the skin, the suppression of urine, & other signes to affect a crisis and excretion by sweat, you then shall procure it by the formerly mentioned meanes. It is delivered by the Ancients that all sweats in acute diseases are salutary, which happen upon a Criticall day, which are universall and hot, and signified before the criticall day. But in this rapid and deadly disease of the Plague, wee must not expect a Crisis, but as soone as wee can, and by what meanes wee may to free nature from so dire and potent an enemy.

Why the pestilent malignity is not carried away by one way, but by many.

We must have chiefe regard to the motion of nature.

Signes of future sweat.

A Crisis must not be expected in the Plague.

But

How to procure
vomit.

Why vomit
must not be
forced.

But oft times the tough and grosse excrementitious humours may bee purged by vomit, which could not be evacuated by strong purges. Therefore also by this manner of excretion may we hope for the exclusion of the pestilent venome, if there bee nothing which may hinder, and nature by frequent nauseousnesse may seem to affect this way: the endeavour thereof shall be helped by giving some halfe a pint of warm water to be drunke with foure ounces of common oyle, an ounce of vinegar, and a little juice of raddish, after the taking of the potion it is fit to thrust into the throate a goose quill dipped in the same oyle, or else a branch of Rosemary, or else by thrusting in the fingers so to procure vomit; also a potion of eight ounces of the mucilaginous water of the decoction of Line seeds will procure vomit. Or else, *Rc. rad. raph. in taleol. sect. vel sem. ejus, & sem. antriplicis, an. 3 iii. bulliant in aqua com. quod sufficit pro dosi, in colatura dissolve oxym. & syr. acet. an. 3 ss. exhibeatur potio larga & tepida.* Or else, *Rc. oxym. Gal. 3 vi. ol. com. 3 ii. paretur potio tepid.* But nature must not be forc't, unlesse of its own accord it undertake this motion; for forced and violent vomiting, distends the nervous fibers of the ventricle, dejects the strength, breaks the vessels of the Lungs, whence proceeds a deadly spitting of blood. Wherefore if the stomach shall trouble it selfe with a vain and hurtfull desire to vomit, it shall rather be strengthened with bagges of roses, worm-wood and Saunders, using inwardly the juice of Quinces and Berberies, and brothes made for the same purpose.

CHAP. XXXVII.

*Of spitting, Salivation, Sneezing, Belching, Hicketting, and making
of Water.*

The effect of
spitting in pesti-
lent diseases.



That long evacuations may be made by spitting and salivation, you may learne by the example of such as have a plurisie, for the matter of the plurisie being turned into pus, the purulent matter sucked up by the rare and spongy substance of the lungs, and thence drawn into the *Aspera Arteria*, is lastly cast out by the mouth.

The force of sa-
livation.

There is none ignorant, how much such as have the *Lues venerea* are helped by salivation and spitting. But these shall be procured by Masticatories of the roots of *Ireos*, Pellitory of Spaine, Mastick, and the like; the mucilage of Line seeds held in the mouth will worke the same effect.

The force of
sneezing.

That such as have a moist braine may expell their superfluous humours by sneezing and blowing their noses, the braine by the strength of the expulsive faculty, being stirred up to the exclusion of that which is harmefull, may be knowne by the example of old people and children which are daily purged by their noses; the braine is stirred up to both kindes of excretion from causes either internall or externall: from the internall, as by a phlegmaticke and vaporious matter, which contained in the braine, offends it; externally, as by receiving the beames of the sunne in the nostrils, or by tickling them with a feather, or blowing into them the powder of Hellebore, *Euphorbium*, *Pyrethrum*, Mustard seed, and the like sternutamentories. For then the braine is straitened by its owne expulsive faculty, to the excretion of that which is troublous unto it. Sneezing breaketh forth with noise, for that the matter passeth through straits, to wit, by the straining passages of the *Os cribrosum*, which is seated at the roots of the nostrills. It is not fit to cause sneezing in a body very plethorick, unlesse you have first premised generall medicines, lest the humours should bee more powerfully drawne into the braine, and so cause an Apoplexie, *Vertigo*, or the like symptomes.

The commodi-
ties of belching.

By belching the flatulencies contained in the ventricle, being the off-spring of crudity, or flatulent meats, are expelled, these by their taste and smell, pleasing, stinking, sweet, bitter or tart, shew the condition and kinde of crudity of the humours from whence they are raised: now vomiting freeth the stomach of crudities, but the distemper must be corrected by contraries, as altering things to be prescribed by the Physitian.

Hicke-

Hicketting is a contraction and extension of the nervous fibers of the stomach, to cast forth such things as are too contumaciously impacted in the coates thereof; yet repletion only is not the cause thereof, but sometimes inanition also; so oft times a putride vapour, from some other place, breaking into the stomacke, as from a pestilent *Bubo*, or Carbuncle; also all acide and acride things, because they pricke, vellicate & provoke the tunicles of the ventricle, as vinegar, spiced things, and the like; often & contumacious hicketting after purging, a wound or vomiting, is ill; but if a convulsion presently happen thereon, it is deadly.

Severall remedies must be used according to the variety of the causes: for repletion helps that hicketting that proceeds from inanition, & evacuation that which happens by repletion: that which proceeds from a putrid and venemous vapour, is helped by Treacle and Antidotes; that which is occasioned by acide and acrid things, is cured by the use of grosse, fatty, and cold things.

Now the whole body is oft times purged by urine, and by this way the feavourish matter is chiefly and properly accustomed to bee evacuated: not a few, being troubled with the *Lues venerea*, when as they could not be brought to salivation by unction, have bin cured by the large evacuation of urine caused by diuretick medicines. Diureticks wherewithall you may move urine, are formerly described in treating of the stone. But we must abstaine from more acride diureticks, especially when as inflammation is in the bladder; for otherwise the noxious humours are sent to the affected part, whence there is danger of a deadly Gangrene. Therefore then it is better to use diversion by sweat.

The whole body purged by urine.

When we ought to abstaine from diureticks.

CHAP. XXXVIII.

Of the Menstruall and Hemorrhoidall purgation.

Not onely reason, but also manifold experience induceth us to believe that women, by the benefit of their menstruall purgation, escape and are freed from great, pestilent, and absolutely deadly diseases; wherefore it must bee procured by remedies, both inwardly taken, and outwardly applied: these may be taken inwardly with good successe, *Cassia lignea*, Cinamon, the barke of the root of a Mulberry, Saffron, Agricke, Nutmeg, Savine, *Diagridium*, and divers others. But if the affect require more vehement medicines, the rootes of Tithymel, Antimony, *Cantharides* (taken in small quantity) move the courses most powerfully; frictions and ligatures made upon the thighes and legges conduce hereto, as also cupping in the inner and middle part of the thighs, the opening of the vein *Saphena*, leaches applyed to the orifice of the neck of the womb, pessaries, nodula's, glysters, baths, fomentations made of oderiferous things, which by the fragrancy of their odor, or rather by their heat, may attenuate & cut grosse humors, open the obstructed orifices of the veines, such are the roots of Marsh-mallows, Orris, Parsly, Fennell, Kneholne, the leaves and floures of St. Johns Wort, *Asparagus*, Rocket, Balme, Chervile, Mugwort, Mints, Penny-royall, Savory, Rosemary, Rue, Time, Sage, Bay berries, Broome, Ginger, Cloves, Pepper, Nutmegs, and the like; the vapour of the boyling whereof, let the woman, sitting upon a perforated seat, receive by a funnell into the necke of her wombe, covering herselfe warme on all sides, that so nothing may otherwise breath forth. Of the same things may bee made bathes, as well generall as particular. Also pessaries are good made after this manner. *Rx. thebariac. mithrid. an. 3 ss. castor. gum. ammoniac. an. 3 i. misce cum bombace in succo mercurialis tincto, fiat pessarium.* Or else, *Rx. rad. petroselin. & fœnug. sub cineribus coctas, deinde contusas cum pul. staphysag. pyreth. croco & oleo liliorum,* to make a pessary in the forme of a suppository or nodula. Or, *Rx. pulv. myrrh. & aloes, an. 3 i. fol. sabin. nigel. arthemis. an. 3 ii. rad. Helleb. nigr. 3 i. croci, 3 i. cum succo mercur. & melle com-muni:* make a pessary in Corton. This which followes is more effectuall. *Rx. succi rus. absinth. an. 3 ii. myrrh. euphorb. castor. sabin. diacrid. terebinth. galban. tberiac. an. 3 i.* make

How to provoke the courses.

How aromatick things provoke the courses.

Pessaries to provoke the courses.

make a pessary according to art; let a thred hang out of the one end of the pessaries, that so you may easily draw them forth as you please.

How to stop the
courses flowing
too immoderately.

But if this menstruous flux once provoked, flow too immoderately, it must be stopped by using meats of grosser and more viscid juice, by opening a veine in the arm, application of cupping glasses under the dugs, frictions and ligations of the upper parts, as the armes, putting up of pessaries, application of refrigerating and astringent plasters, to the lower belly, share and loines, laying the woman in a convenient place, and not upon a feather-bed.

This following injection stoppeth the blood flowing out of the wombe, *R. aqua plant. & fabror. an. lb i. nucum cupres. gallar. immatur. an. 3 ii. berber. sumach. balauft. vitriol. rom. alum. roch. an. 3 ii. bulliant omnia simul, & fiat decoctio*: of this make injection into the wombe. In the performance of all these things, I would have the Surgeon depend upon the advice of a Physitian, as the occasion and place shall permit.

How to provoke
the hæmorrhoids.

But if nature endeavour to free it selfe of the pestilent matter by the hæmorrhoids, you may provoke them by frictions and strong ligatures in the lower parts, as if the thighs or legs were broken, by ventoses applyed with great flame to the inner side of the thigh, by application of hot and attractive things to the fundament, such as are fomentations, emplasters, unguents, such as is usually made of an onion roasted under the embers, and incorporated with Treacle, and a little oile of Rue: after the hæmorrhoid veines, by these meanes, come to shew themselves, they shal be rubbed with rough linnen cloths, or fig leaves, or a raw onion, or an oxegall mixt with some powder of *Coloquintida*: lastly you may apply horse-leaches, or you may open them with a Lancet, if they hang much forth of the fundament, and be swolne with much blood. But if they flow too immoderately, they may be stayed by the same meanes as the courses.

CHAP. XXXIX.

Of procuring evacuation by stooles, or a fluxe of the belly.



Nature often times, both by it selfe, of its owne accord, as also helped by laxative and purging medicines, casts into the belly and guts, as into the sinke of the body, the whole matter of a pestilent disease. whence are caused *Diarrhæa's*, *Lienteries*, and *Dysenteries*; you may distinguish these kindes of fluxes of the belly, by the evacuated excrements. For if they be thinne and sincere, that is, reteine the nature of one, and that a simple humour, as of choler, melancholy or phlegme, and if they be cast forth in a great quantity, without the ulceration or excoriation of the guts, vehement or fretting paine, then it is a *Diarrhæa*, which some also call *fluxus humoralis*. It is called a *Lienteria*, when as by the resolved retentive faculty of the stomacke and guts caused by ill humours, either there collected, or flowing from some other place, or by a cold & moist distemper, the meat is cast forth crude, & almost as it was taken. A *Dysenteria* is when as many and different things, and oft times mixt with blood, are cast forth with pain, gripings, and an ulcer of the guts, caused by acride choler, fretting insunder the coats of the vessels.

What a *Diarrhæa* is.

What a *Dysenteria* is.

The cause of various, and stinking excrements in the plague.

But if in any kinde of disease, certainly in a pestilent one, fluxes of the belly happen immoderate in quantity, and horrible in the quality of their contents, as liquid, viscous, frothy as from melted greace, yellow, red, purple, greene, ash-coloured, blacke, and exceeding stinking. The cause is various, and many sorts of ill humours, which taken hold of by the pestilent malignity, turne into divers species, differing in their whole kinde both from their particular, as also from nature in generall, by reason of the corruption of their proper substance, whole inseparable signe is stinck, which is oft times accompanied by wormes.

A history:

In the campe at *Amiens* a pestilent *Dysenteria* was over all the Campe, in this the strongest Souldiers purged forth meere blood: I dissecting some of their dead bodies

dies, observed the mouths of the Mesaraike Veines and Arteries, opened and much swollen, and whereas they entered into the guts, were just like little Caryledones, out of which, as I pressed them, there flowed blood. For both by the excessive heat of the summers sunne, and the mindes of the enraged souldiers, great quantity of acride and cholericke humour was generated, and so flowed into the belly: but you shall know whether the greater or the lesser guts be ulcerated, better by the mixture of the blood with the excrements, than by the site of the paine, therefore in the one you must rather worke by Glysters, but in the other, by Medicines taken by the mouth.

Therefore if by gripings, a *tenesmus*, the murmuring and working of the guts, you suspect in a pestilent disease, that nature endeavours to disburden it self by the lower parts, neither in the meane while doe it succeed to your desire, then must it be helped forward by art, as by taking a potion of \mathfrak{z} ss. of *biera simplex*, and a dramme of *Dia-phanicon* dissolved in worme-wood water. A potion.

Allo Glysters are good in this case, not onely for that they assuage the gripings and paines, and draw by continuation or succession from the whole body, but also because they free the mesaraike veines and guts from obstruction and stuffing, so that by opening and as it were unlocking of the passages, nature may afterwards more freely free it selfe from the noxious humours. In such glysters they also sometimes mixe two or three drammes of Treacle, that by one and the same labour they may retunde the venenate malignity of the matter.

There may also be made for the same purpose suppositories of boyled hony \mathfrak{z} i. of *biera picra* and common salt, of each \mathfrak{z} ss. or that they may bee the stronger, of hony \mathfrak{z} iii. of oxe gall \mathfrak{z} i. of Scammony, *euphorbium* and *coloquintida* poudred, of each \mathfrak{z} ss. The want of these may be supplied by nodula's made in this forme. *Rc. vitell. ovor. nu. iii. fellis bubuli, & mellis, an. \mathfrak{z} ss. salis com. \mathfrak{z} ss.* let them be stirred together, and well incorporated, and so parted into linnen ragges, and then bound up into nodula's, of the bignesse of a filberd, and so put up into the fundament; you may make them more acride by adding some powder of *Euphorbium* or *Coloquintida*. Suppositories.

CHAP. XL.

Of stopping the fluxe of the belly.

Violent and immoderate scourings, for that they resolve the faculty, and lead the patient into a consumption and death, therefore if they shall appear to be such, they must be stayed in time by things taken and injected by the mouth and fundament. To this purpose may a pudding be made of wheat flower boyled in the water of the decoction of one pomegrate, berberies, bole armenick, *terra sigillata*, and white poppie seeds, of each \mathfrak{z} i. A hasty pudding to stay the laske.

The following Almond milke strengthens the stomacke, and mitigates the acrimony of the cholericke humour, provoking the guts to excretion. Take sweet Almonds boiled in the water of barley, wherein Steele or Iron hath been quenched, beat them in a marble mortar, and so with some of the same water make them into an Almond milk, wherto adding \mathfrak{z} i. of *Diarhodon Abbat*is you may give it to the patient to drink.

This following medicine I learnt of Dr. Chappelaïne the Kings chiefe physitian, who received it of his father, and held it as a great secret, & was wont to prescribe it with happy successe to his patients: It is thus, *Rc. boli armen. terra sigil. lapid. hamat. an. \mathfrak{z} i. picis navalis, \mathfrak{z} i ss. coral rub. marg. elect. corn. cervi ust. & loti in aq. plant. an. \mathfrak{z} i. sacchar. ros. \mathfrak{z} ii. fiat pulvisc.* of this let the patient take a spoonefull before mear, or with the yolke of an egge. D. Chappelaïne's medicine to stay a scouring.

Christopher Andrew in his *æcoiätia* much commendeth dogges dung, when as the dogge hath for three dayes before bin fed onely with bones.

Quinces roasted in embers, or boyled in a pot, the conserve of cornelian cherries, preserved berberies and myrabalans, roasted nutmeg taken before mear, strengthen the stomack and stay the laske; the patient must feed upon good meats, and these ra-

Diabole.

ther roasted than boiled. His drinke shall be chalibeate water of the decoction of a soure pomegranate beaten, or of the decoction of a quince, medlars, cervices, mulberries, bramble berries, and the like things, endued with a faculty to binde and waste the excrementitious humidities of the body: these waters shall be mixed with syrupe of red currance, Julep of roses, and the like.

Ointments.

Let the region of the stomacke and belly be anointed with oile of masticke, *Moschatelinum*, myrtles and quinces. Also a crust of bread newly drawn forth of the oven and steeped in vinegar and rose water, may be profitably applyed; or else a cataplasme of red roses, sumach, berberies, myrtles, the pulpe of quinces, mastick, bean flower, and hony of roses made up with calibeate water.

Glysters to stay a fluxe.

Anodyne, abstergent, astringent, consolidating and nourishing glysters shall bee injected. These following retund the acrimony of humours, and assuage paine. R^x. *fol. lactuc. hyosc. acetos. portul. an. m. i. flor. violar. & nenuph. an. p. i. fiat decoctio ad lb i. in colatura dissolve cassia fistul. 3 vi. olei rosat. & nenuph. an. 3 i lb. fiat clyster.* Or else, R^x. *ros. rub. bord. mund. sem. plant. an. p. i. fiat decoctio, in colatura adde olei ros. 3 ii. vitel. ovar. ii. fiat clyster.* Or, R^x. *decoctionis Capi, crur. vitellin. & capit. ver. vicin. una cum pelle, lb ii. in qua coquantur fol. violar. malv. mercur. plantag. an. m. i. bord. mund. 3 i. quatuor sem. frigid. major. an. 3 lb. in colatura lb lb. dissolve cass. recenter extract. 3 i. ol. viol. 3 iv. vitellor. ovar. ii. sach. rub. 3 i. fiat clyster.* Or, R^x. *flor. chamæm. melil. aneth. an. p. i. rad. bismal. 3 i. fiat decoctio in lacte; colatura adde mucag. sem. lin. fenugr. extract. in aqua malv. 3 ii. sacchar. rub. 3 i. olei cham. & aneth. an. 3 i lb. vitellor. ovar. ii. fiat clyster.*

Such glysters must be long kept that they may more readily mitigate paine. When shavings of the guts appeare in the stooles, it is an argument that there is an ulcer in the guts; therefore then wee must use detergent and consolidating glysters, as this which followes.

A glyster for ulcerated guts.

R^x. *bordei integr. p. ii. ros. rub. flor. chamæm. plantag. apii, an. p. i. fiat decoctio, in colatura dissolve mellis rosat. & syr. de absinth. an. 3 i lb. vitel. ovar. ii.* This following glyster consolidateth. R^x. *fucci plantag. centinod. & portulac. nu 3 ii. bol. armen. sang. dracon. amyl. an. 3 i. sebi hircini dissoluti, 3 iii. fiat clyster.* Also cowes milke boyled with plantaine and mixed with syrupe of roses is an excellent medicine for the ulcerated guts.

A very astringent glyster.

This following glyster bindes. R^x. *caud. equin. plant. polygon. an. m. i. fiat decoctio in lacte ustulato ad quart. iii. & in colatura adde boli arm. terra sigil. sang. dracon. an. 3 ii. albumina duor. ovar. fiat clyster.* Or else, R^x. *suc. plant. arnoglos. centinod. portulac. residua facta depuratorum quantum sufficit pro clystere, addendo pul. boli armeni, terra sigil. sang. dracon. an. 3 i. ol. myrihin. & rosat. an. 3 ii. fiat clyster.*

If pure blood flow forth of the guts, I could wish you to use stronger astringives. To which purpose I much eommend a decoction of pomegranate pills, of cypresse nuts, red rose leaves, sumach, alome, and vitrioll made with smithes water, and so made into glysters, without any oyle. It will bee good with the same decoction to foment the fundament, *perinaum*, and the whole belly.

Astringent glysters ought not to bee used before that the noxious humours bee drawne away and purged by purging medicines, otherwise by the stoppage hereof, the body may chance to be oppressed.

A nourishing glyster.

If the patient bee so weake that hee cannot take or swallow any thing by mouth, nutritive glysters shall be given him. R^x. *decoctionis capi pinguis, & cruris vitalini, coct. cum acetosa, buglosso, boragine, pimpinella, lactuca, 3 x. vel xii. in quibus dissolve vitellos ovarum, num iii. sacchari rosati, & aquæ vita, an. 3 i. butyri recentis non salni, 3 ii. fiat clyster.*

CHAP. XLI.

Of evacuation by insensible transpiration.

HHe pestilent malignity as it is oft times drawne by the pores, by transpiration into the body, so oft times it is sent forth invisibly the same way againe. For our native heat that is never idle in us, disperseth the noxious humours attenuated into vapours and aire through the unperceivable breathing places of the skin. An argument hereof is, we see that the tumours and abscesses against nature, even when they are come to suppuration, are oft times resolved and discussed by the onely efficacy of nature, and heate, without any helpe of art. Therefore there is no doubt, but that nature being prevalent, may free it self from the pestilent malignity by Transpiration, some Abscesse, *Bubo* or Carbuncle being come forth, and some matter collected in some certaine part of the body. For when as nature and the native heat are powerfull and strong, nothing is impossible to it, especially when as the passages are also in like manner free and open.

Tumours are oft-times discussed by the force of nature after they are suppurated.

CHAP. XLII.

How to cure Infants and Children taken with the Plague.

IF that it happen that sucking or weaned children be infected with the pestilence, they must bee cured after another order than is yet described.

The Nurse of the sucking childe must governe her selfe so in dyet and the use of medicines, as if she were infected with the pestilence her self:

The nurse must be dieted when as the child is sick.

Her dyet consisteth in the use of the six things not naturall. Therefore let it be moderate, for the fruit or profit of that moderation in dyet cannot chuse but come unto the Nurses milke, and so unto the infant who liveth onely by the milke. And the infant it selfe must keep the same diet as neere as he can in sleep, waking, and expulsion, or avoyding of superfluous humours and excrements of the body. Let the Nurse bee fed with those things that mitigate the violence of the feaverish heat: as cooling brothes, cooling herbs, and meats of a moderate temperature: shee must wholly abstaine from wine, and anoint her nipples, as often as shee giveth the infant sucke, with water, or juice of sorrell tempered with sugar of roses. But the infants heart must bee fortified against the violence of the encreasing venome, by giving it one scruple of treacle in the Nurses milke, the broth of a pullet, or some other cordiall water. It is also very necessary to anoint the region of the heart, the emunctories, and both the wrests with the same medicine: neither were it unprofitable to smell often unto Treacle dissolved in rose water, vinegar of roses and a little *aqua vita*, that so nature may bee strengthened against the malignity of the venome. When the children are weaned, and somewhat well growne, they may take medicines by the mouth, for when they are able to concoct and turne into bloud meats that are more grosse and firm than milk, they may easily actuate a gentle medicine. Therefore a potion must be prepared for them of twelve graines of treacle, dissolved with a little of the syrupe of succory in some cordiall water, or the broth of a capon: unlesse that any had rather give it with conserve of roses, in forme of a bole: but treacle must bee given to children in very small quantity, for if it be taken in any large quantity, there is great danger lest that by inflaming the humours, it inferre a feaver. Furthermore, broth may be prepared to be taken often, made of a capon seasoned with sorrell, lettuce, purslaine and cooling feeds, adding thereto bole armenick and *terra sigillata*, of each one ounce, being tyed in a rag, and sometimes pressed out from the decoction. For bole armenicke, whether it be by its marvellous faculty of drying, or by some hidden property, hath this vertue, that being drunken (according as *Galen* witnesseth) it cureth those that are infected with the pestilence, if so be that they may bee cured by physick: so that those that cannot be cured with bole armenick, cannot bee pre-

Medicines may be given to such as are weaned.

Lib. 9. simp. ch. 7.

The benefit of
sweate.

The forme of a
purge to be gi-
ven to a child.

served by any other medicines. But because the bodies of children are warme, moist and vaporous, they are easily delivered of some portion of the venenate matter through the pores of the skin by provoking sweat, with a decoction of partly seeds, prunes, figs, and the roots of sorrell, with a little of the powder of Harts horne, or Ivory. But that the sweat may be more abundant and copious, apply sponges dipped & pressed out in the hot decoction of sage, rosemary, lavender, bayes, chamomill, melilote and mallows, or else swines bladders halfe filled with the same decoction, to the arme holes, and to the groines. In the time that they sweat, let their faces be fanned to coole them. Also let a nodule of Treacle, dissolved in vinegar and water of Roses, bee appled to the nostrils; but alwaies use a moderation in sweating, because that children are of a substance that is easie to be dissipated and resolved: so that oftentimes although they do not sweat, yet they feel the commodities of sweating, the matter of the venome being dissipated by the force of the heat through the pores of the skin. But in the sweating while the face is fanned, and sweet & cordiall things applied to the nostrils, nature must bee recreated and strengthened, which otherwise would be debilitated through sweating, that it may bee better able to expell the venome. After that the sweat is wiped away, it is very profitable to take a potion of conserve of Roses, with the powder of Harts horne or of Ivory dissolved in the waters of Buglosse and Sorrel, the better to coole and defend the heart. If there appeare any tumour under the arme holes or in the groine, let it bee brought to maturation with a mollifying, relaxing, drawing, and then with a suppurative fomentation, or Cataplasme; alwaies using and handling it as gently as you may, considering the tender age of the infant. If you have need to purge the patient, the purgation following may be prescribed with great profit. Take of Rubarbe in powder one dram, insule it in the water of *Cardus Benedictus*, with one scruple of Cinamon, in the straining dissolve two drams of *Diacatholicon*, of syrupe of Roses laxative three drams; make thereof a small potion. This is the cure of the Pestilence and of the pestilent Feaver, as far as I could learn from the most learned Physicians, and have observed my selfe by manifold experience by the grace and permission of God: of whom alone, as the Author of all good things that mortall men enjoy, the true and certaine preservatives against the pestilence are to be desired and hoped for.

The End of the Twentie second Booke.





OF THE
MEANES AND
MANNER TO REPAIRE
OR SUPPLY THE NATURALL
 or accidentall defects or wants
in mans body.

THE TWENTIE THIRD BOOKE.

CHAP. I.

*How the losse of the naturall or true eye may bee covered,
 hidden or shadowed.*



Having at large treated in the former Bookes of tumours, wounds, ulcers, fractures and luxations, by what meanes things dissolved and dislocated might bee united, things united separated, and superfluities consumed or abated: Now it remaines that we speak of the fourth office or duty of the Chirurgian, which is to supply or repaire those things that are wanting by nature, through the default of the first conformation, or afterwards by some mischance. Therefore, if that through any mischance, as by an inflammation, any mans eye happen to be broken or put out, & the humors spilt or wasted, or if it be stricken out of his place or cavity wherein it was naturally placed, by any violent stroak, or if it waste or consume by reason of a consumption of the proper substance, then there is no hope to restore the sight or function of the eye, yet you may cover the deformity of the eye so lost (which is all you can doe in such a case) by this meanes: If that when you have perfectly cured and healed the ulcer, you may put another eye artificially made of gold or silver, counterfeited and enamelled, so that it may seem to have the brightnesse, or gemmie decencie of the naturall eye, into the place of the eye that is so lost.

The fourth duty of a Surgeon.

The formes of eyes artificially made of gold or silver, polished and enameled, shewing both the inner and outer side.



But if the patient be unwilling, or by reason of some other meanes cannot weare this eye so prepared, in his head, you may make another on this wise. You must have a string or wiar, of iron bowed or crooked, like unto womens ear-wiars, made to bind the head harder or looser as it pleaseth the patient, from the lower part of the head behinde above the eare, unto the greater corner of the eye, this rod or wiar must be covered with filke, and it must also be somewhat broad at both the ends, lest that the sharpenesse thereof should pierce or pricke any part that it commeth unto. But that end wherewith the empty hollownesse must be covered, ought to bee broader than the other, and covered with a thin piece of leather, that thereon the colours of the eye that is lost may be shadowed or counterfeited. Here followeth the figure or portraiture of such a string or wiar.

The forme of an iron wiar wherewith the deformity of an eye that is lost may bee shadowed or covered.



CHAP. II.

By what means a part of the nose that is cut off, may be restored; or how in stead of the nose that is cut off, another counterfeit nose may be fastened or placed in the stead.

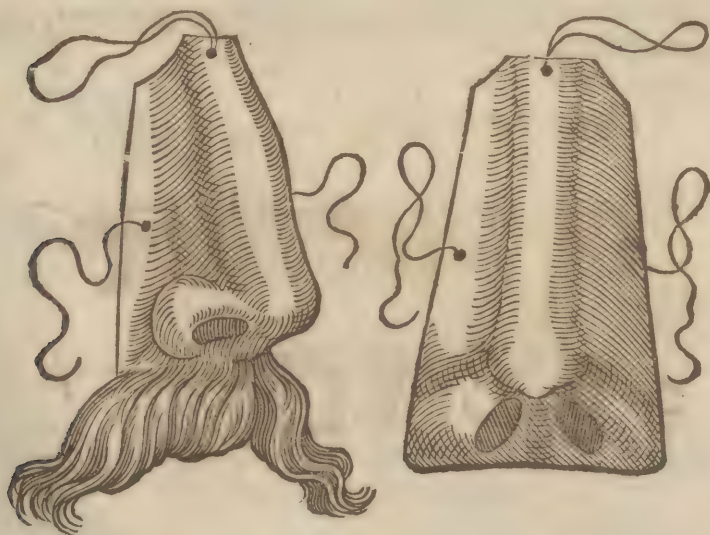


When the whole nose is cut off from the face, or portion of the nostrils from the nose, it cannot bee restored or joyned againe: for it is not in men as it is in plants. For plants have a weake and feeble heate, and furthermore it is equally disperfed into all the substance of the plant or tree, neither is it easie to be consumed or wasted, for when the boughes or branches of trees are broken, torne, or cut away, they live neverthelesse, and will grow againe when they are let or grafted; neither is there any seate for the heart rightly prepared in them from whence the heat must necessarily run, and disperse it selfe continually into all the parts thereof. But contrariwise, the separated parts of more perfect living creatures, as of men, are incontinently deprived of life, because they have their nourishment, life, sense, and whole sustentation not of themselves, by faculties flowing or coming unto them from some other parts, neither are they governed by their own heat as plants, but by a borrowed heat, so that above or beside the naturall faculty of the liver, another vitall faculty commeth unto it from the heart.

Why the parts of plants being cut off, may grow againe, but those of man cannot.

Wherefore in stead of the nose cut away or consumed, it is requisite to substitute another made by Art, because that nature cannot supply that defect: this nose so artificially made, must be of gold, silver, paper or linnen clothes glewed together, it must bee so coloured, counterfeited and made both of fashion, figure and bignesse, that it may as aptly as is possible, resemble the natural nose: it must be bound or stayed with little threeds or laces unto the hinder part of the head or the hatte. Also if there be any portion of the upper lip cut off with the nose, you may shadow it with annexing some such thing that is wanting unto the nose, and cover it with the haire on his upper lippe, that he may not want any thing that may adorne or beautifie the face. Therefore I have thought it necessary to set downe the figure or forme of both these kindes.

The forme of a nose artificially made, both alone by it selfe, and also with the upper lip, covered as it were with the haire of the beard.



There was a Surgeon of Italy of late yeares which would restore or repaire the portion of the nose that was cut away after this manner. Hee first scarified the callous edges of the maimed nose round about, as is usually done in the cure of hare-lips

A strange cure for a cut off nose

lips : then he made a gash or cavity in the muscle of the arme, which is called *Biceps*, as large as the greatnesse of the portion of the nose which was cut away did require: And into that gash or cavity so made, he would put that part of the nose so wounded, & bind the patients head to his arm as if it were to a poast, so fast that it might remain firme, stable and immoveable, and not leane or bow any way, and about forty dayes after, or at that time when he judged the flesh of the nose was perfectly agglutinated with the flesh of the arm, he cut out as much of the flesh of the arme, cleaving fast unto the nose, as was sufficient to supply the defect of that which was lost, & then he would make it even, & bring it, as by licking, to the fashion & forme of a nose, as near as art would permit, & in the mean while he did feed his patient with ponadoes, gellies, & all such things as were easie to be swallowed & digested. And he did this work of curing the place where the flesh was so cut out, only with certain balmes & agglutinative liquors. A younger brother of the family of *St. Thoan*, being weary of a silver nose, which being artificially made, he had worn in the place of his nose that was cut off, went to this Chirurgian into Italy, & by the means of the fore-named practice he recovered a nose of flesh againe, to the great admiration of all those that knew him before. This thing truly is possible to be done, but it is very difficult both to the patient suffering, and also to the Chirurgian working. For that the flesh that is taken out of the arme, is not of the like temperature as the flesh of the nose is, also the holes of the restored nose cannot be made as they were before.

A history

CHAP. III.

Of the Placing of teeth artificially made in stead of those that are lost or wanting.



It oftentimes happeneth that the fore teeth are moved, broken or stricken out of their places by some violent blow, which causeth deformity of the mouth, and hinders plain pronounciation. Therefore when the jaw is restored (if it were luxated or fractured) and the gums brought unto their former hardnesse, other teeth artificially made of bone or Ivory may bee put in the place of those that are wanting, and they must bee joyned one fast unto another,

and also so fastened unto the naturall teeth adjoyning, that are whole; and this must chiefly bee done with a thread of gold or silver, or for want of either, with a common thread of silke or flaxe, as it is declared at large by *Hippocrates*, and also described in this figure following.

Sect. 2. lib. de
art. dent. 25.

The figure of teeth bound or fastned together.



CHAP. IIII.

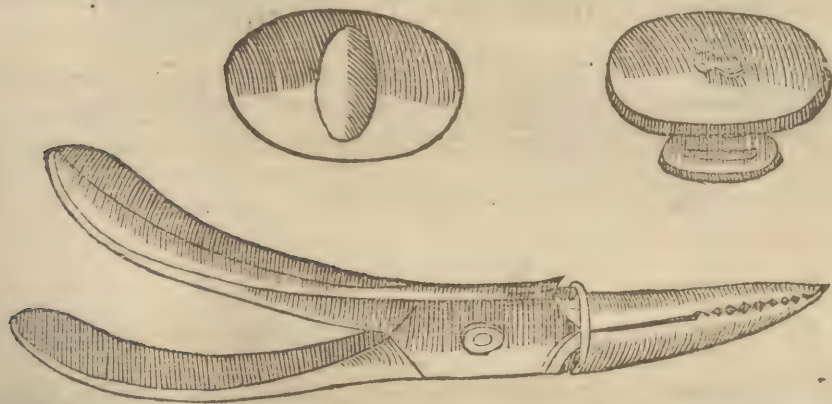
Of filling the hollownesse of the Pallat.

MAny times it happeneth that a portion or part of the bone of the pallat, being broken with the shot of a gun, or corroded by the virulency of the *Lues venerea*, falls away, which makes the patients to whom this happeneth, that they cannot pronounce their words distinctly, but obscurely and snuffling: therefore I have thought it a thing worthy the labour to shew the meanes how it may be helped by art. It must be done by filling the cavity of the pallat with a plate of gold or silver a little bigger than the cavity its selfe is. But it must bee as thick as a French Crowne, and made like unto a dish in figure, and on the upper side, which shall be towards the braine, a little sponge must bee fastened, which, when it is moistened with the moyستure distilling from the brain, will become more swolne and puffed up, so that it will fill the concavity of the pallat, that the artificiall pallat cannot fall down, but stand fast and firme, as if it stood of it selfe. This is the true figure of those instruments, whose certain use I have observed not by once or twice, but by manifold triall in the battels fought beyond the Alpes.

The causes and
hurt that ensues
of the lost pallat.

The figure of plates to fill or supply the defects of the Pallat.

The figure of another plate for the Pallat, on whose upper side there is a button which may be turned when it is put into the place, with a small Ravens bill, like this whose figure is here expressed.



CHAP. V.

How to helpe such as cannot speake by reason of the losse of some part of the tongue.

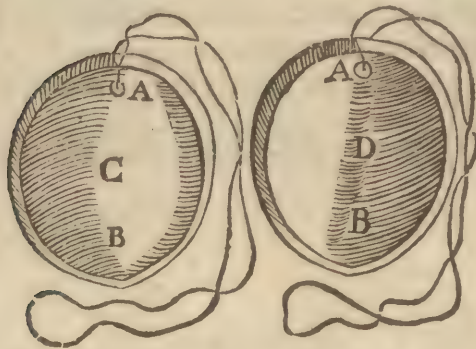
Hance gave place and authority to this remedy, as to many other in our art. A certaine man dwelling in a village named *Yvoy le Chasteau*, being some twenty foure miles from *Bourges*, had a great piece of his tongue cut off, by which occasion hee remained dumbe some three yeares. It happened

A remedy found
out by accident.
A history.

on

on a time that as hee was in the fields with reapers, hee drinking in a wooden dish, was tickled by some of the standers by, not enduring the tickling, hee suddenly broke out into articulate and intelligible words. He himselfe wondring thereat, and delighted with the novelty of the thing, as a miracle, put the same dish to his mouth just in the same manner as before, and then he spake so plainly and articulately, that he might be understood by them all. Wherefore a long time following he alwaies carried this dish in his bosome, to utter his mind, untill at length necessity, the mistress of arts and giver of wit, inducing him, hee caused a wooden instrument to be neatly cut and made for him, like this which is here delineated, which hee alwaies carried hanging at his neck, as the onely interpreter of his mind, and the key of his speech.

An instrument made to supply the defect of the speech when the tongue is cut off.



The use of the Instrument is this.

A sheweth the upper part of it which was of the thicknesse of a nine-pence, which he did so hold betweene his cutting teeth, that it could not come out of his mouth, nor bee seene. B. sheweth the lower part, as thick as a sixe-pence, which he did put hard to the rest of his tongue, close to the membranous ligament which is under the tongue. That place which is deprest and somewhat hollowed, marked with the letter C. is the inner part of the instrument. D. sheweth the outside of the same. Hee hanged it about his necke with the string that is tyed thereto.

Text the Physician of Bourges shewed me this instrument: and I my selfe made tryall thereof on a young man whose tongne was cut off, and it succeeded well, and took very good effect. And I think other Surgeons in such cases may do the like.

CHAP. VI.

Of covering or repairing certain defects or defaults in the face.



T oftentimes happeneth, that the face is deformed by the sudden flashing of Gunpowder, or by a pestilent Carbuncle, so that one cannot behold it without great horror. Such persons must be so trimmed and ordered, that they may come in seemely manner into the company of others. The lips if they bee either cut off with a sword, or deformed with the erosion or eating of a pestilent Carbuncle or ulcerated Cancer, so that the teeth may be seene to lye bare with great deformity. If the losse or consumption of the lip bee not very great, it may be repaired by that way which we have prescribed in the cure of hare-lips, or of an ulcerated Cancer. But if it be great, then must there be a lip of gold made for it, so shadowed and counterfeited, that it may not be much unlike in colour to the naturall lip, and it must be fastened and tyed to the hat or cap that the patient weareth on his head, that so it may remaine stable and firme.

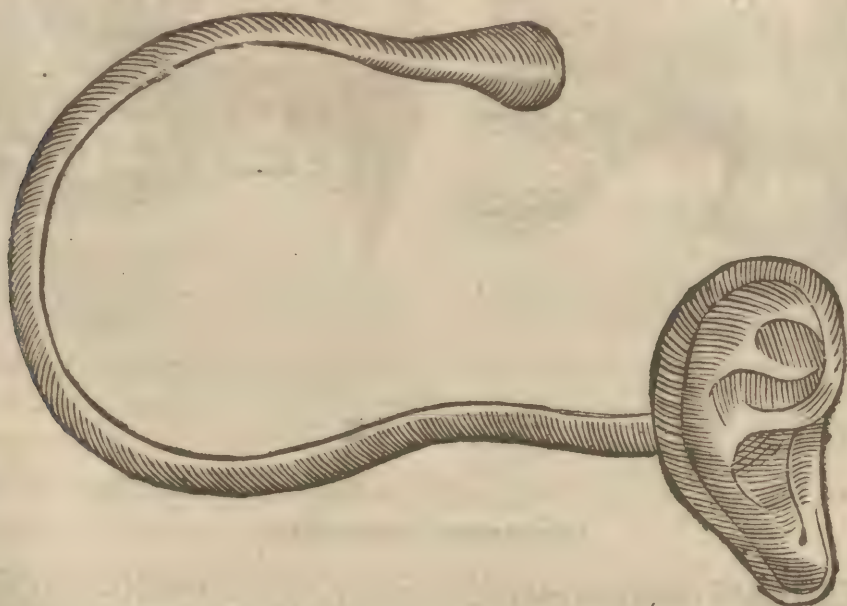
CHAP.

CHAP. VII.

Of the defects of the eares.

Such as want their eares, either naturally or by misfortune, as through a wound, carbuncle, cancer, or the biting of wild beasts: if so be that the eare be not wholly wanting, wasted, consumed, or torne away, but that some portion thereof doth yet remaine, then must it not bee neglected, but must have many holes made therein with a bodkin, and after that the holes are cicatrized, let some convenient thing, made like unto the piece of the eare that is lost, bee tyed or fastned unto it by these holes.

But if the eare bee wholly wanting, another must bee made of paper artificially glewed together, or else of leather, and so fastened with laces, from the toppe or hinder part of the head, that it may stand in the appointed place, and so the haire must be permitted to grow long, or else some cap worne under the hat which may hide or cover the deformity, unlesse you had rather have it to bee shadowed and counterfeited by some Painter, that thereby it may resemble the colour of a naturall eare, and so retin it in the place where it ought to stand, with a rod or wiar comming from the toppe or hinder part of the head, as wee have spoken before in the losse of the eye, and the forme thereof is this.



CHAP. VIII.

Of amending the deformity of such as are crooke-backs.

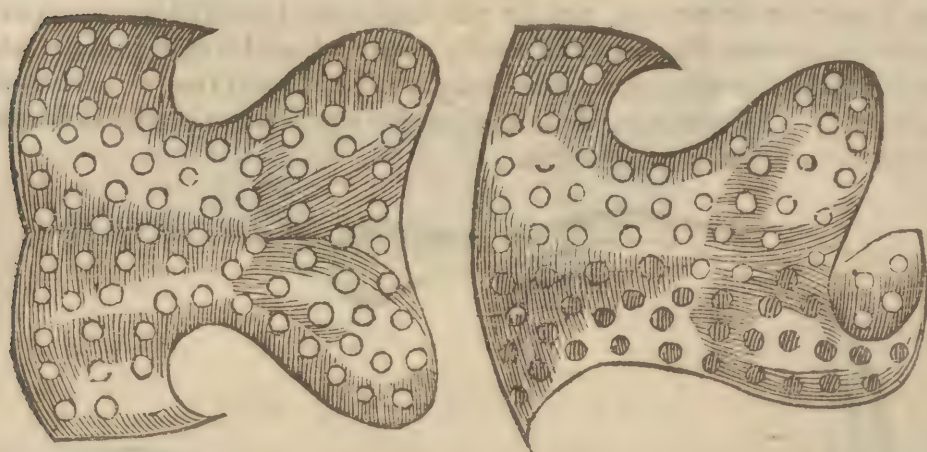
The bodies of many, especially young maids or girles (by reason that they are more moist and tender than the bodies of boyes) are made crooked in proesse of time, especially by the wrenching aside and crookednesse of the backe-bone. It hath many causes, that is to say, in the first con-
Causes of crookednesse.
 formation in the wombe, and afterwards by misfortune, as a fall, bruiſe, or any such like accident, but especially by the unhandſome and undecent ſituation of their bodies, when they are young and tender, either in carrying, ſitting or ſtanding (and eſpecially when they are taught to goe too ſoone) ſaluting, ſewing, writing, or in doing any ſuch like thing.

In the meane while, that I may not omit the occaſion of crookedneſſe, that happens ſeldome to the country people, but is much incident to the inhabitants of great townes and cities, which is by reaſon of the ſtraitneſſe and narrowneſſe of the garments

ments that are worne by them, which is occasioned by the folly of mothers, who while they cover to have their young daughters bodies so small in the middle as may be possible, plucke and draw their bones awry, and make them crooked. For the ligaments of the back-bone being very tender, soft and moist at that age, cannot stay it strait, and strongly, but being pliant, easily permits the spondels to slippe awry inwards, outwards, or sidewise, as they are thrust or forced.

The remedy for this deformity is to have breast-plates of iron, full of holes all over them, wherby they may be lighter to wear; and they must be so lined with bombast, that they may hurt no place of the body. Every three moneths new plates must be made for those that are not yet arrived at their full growth, for otherwise by the daily afflux of more matter, they would become worse. But these plates will do them small good that are already at their full growth.

The forme of an iron Breast-plate, to amend the crookednesse of the Body.



CHAP. IX.

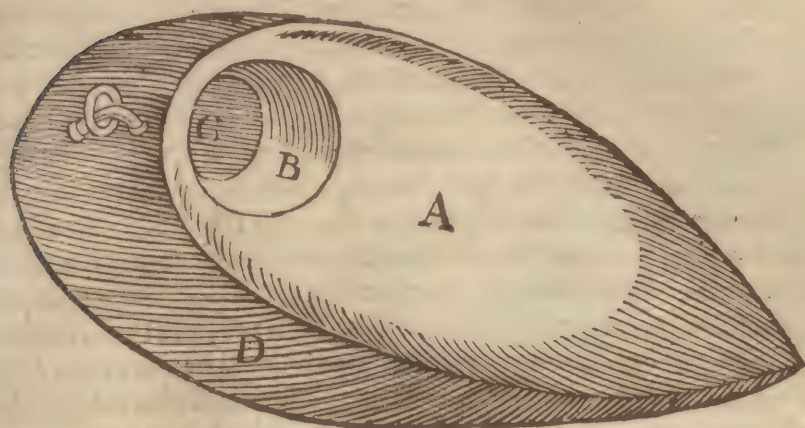
How to relieve such as have their urine flow from them against their wills, and such as want their yards.

An instrument
for such as can-
not hold their
water.



IN those that have the strangury, of what cause soever that malady commeth, the urine passeth from them by drops, against their wills and consent. This accident is very grievous and troublesome, especially to men that travaile: and for their sakes onely I have invented the instrument here beneath described. It is made like unto a close breech or hose, it must be of latin, & to contain some four ounces; it must be put into the patients hose, between his thighs, unto which it must be tied with a point by the ring. Into the open and hollow mouth of this instrument, which is noted with the letter C. the patient must put his yard, & into this concavity or hollownesse goeth a stay somewhat deep, it is marked with the letter B. and made or placed there, both to hold or beare the end of the yard, and also by his close joint that it must have unto the vessell, to stay the urine from going backe againe, when it is once in. But the letters A. and D. doe signifie all the instrument; that the former part, and this the hinder part thereof. Now this is the shape thereof.

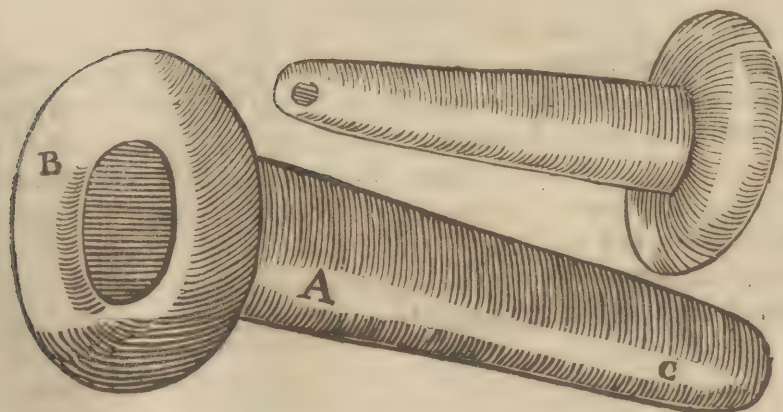
The figure of an instrument, which you may call A Bason, or receptacle for the Urine.



Those that have their yards cut off close to their bellies, are greatly troubled in making of urine, so that they are constrained to sit downe like women, for their ease. I have devised this pipe or conduit, having an hole through it as big as ones finger, which may be made of wood, or rather of latin.

A. and C. doe shew the bignesse and length of the pipe. B. sheweth the brink on the broader end. D. sheweth the outside of the brinke. This instrument must be applied to the lower part of *os pectinis*: on the upper end it is compassed with a brink for the passage of the urine, for thereby it will receive the urine the better, and carry it from the patient, as he standeth upright.

The description of a pipe, or conduit, serving instead of the yard in making of water, which therefore wee may call an artificiall Yard.



CHAP. X.

By what meanes the perished function or action of a thumb or finger may be corrected and amended.

A history.

When a synew or tendon is cut cleane afunder, the action in that part, whereof it was the author, is altogether abolished, so that the member cannot bend or stretch out it selfe, unlesse it bee holpen by art: which thing I performed in a certain gentleman belonging to *Annas of Montmorency*, generall of the French Horsemen, who in the battle of *Dreux* received so great a wound with a back-sword, upon the outside of the wrest of the right hand, that the tendons that did erect or draw up the thumb were cut clean in-sunder, & also when the wound was throughly whole and consolidated, the thumb was bowed inwards, and fell into the palme of the hand, so that he could not extend or lift it up, unlesse it were by the helpe of the other hand, and then it would presently fall downe againe; by reason whereof he could hold neither sword, speare, nor Javeline in his hand, so that he was altogether unprofitable for war, without which he supposed there was no life. Wherefore hee consulted with me about the cutting away of his thumb, which did hinder his griping, which I refused to doe, and told him that I conceived a meanes how it might bee remedied without cutting away. Therefore I caused a case to bee made for it of Latine, whereinto I put the thumb: this case was so artificially fastened by two strings that were put into two Rings, made in it above the joint of the hand, that the thumb stood upright, and straight out, by reason whereof he was able afterwards to handle any kinde of weapon.

The forme of a thumb or finger-stall of iron or latine, to lift up or erect the thumb, or any other finger that cannot be erected of it selfe.



If that in any man the sinewes or tendons which hold the hand upright, be cut afunder with a wound, so that hee is not able to lift up his hand, it may easily bee erected or lifted up with this instrument that followeth, being made of an equall, streight, thin, but yet strong plate of latine, lined on the inner side with filke, or any such like soft thing, and so plac't in the wrest of the hand, that it may come unto the palme, or the first joints of the fingers, and it must bee tyed above with convenient stayes, and so the discommodity of the depression, or hanging of the hand, may bee avoyded; therefore this instrument may be called the Erector of the hand.

The Erector of the Hand.

CHAP. XI.

Of helping those that are Vari or Valgi, that is, crooke-legged or crooke-footed, inwards or outwards.

Hose are said to bee Varous, whose feet or legs are bowed or crooked inwards. This default is either from the first conformation in the wombe, through the default in the mother, who hath her legs in like manner crooked; or because that in the time when she is great with child, she commonly sits with her legs a crosse: or else after the child is born, & that, either because his legs be not well swathed, when he is laid into the cradle, or else because they bee not well placed in carrying the infant, or if he be not wel looked unto by the nurse when he learneth to goe, for the bones of infants are very tender, and almost as flexible as Waxe. What *varus* is.

But contrariwise, those are called *valgi*, whose legs are crooked or bowed outwards. This may come through the default of the first conformation, as well as the other, for by both, the feet and also the knees may bee made crooked, which thing, whosoever will amend, must restore the bones into their proper and naturall place, so that in those that are varous hee must thrust the bones outwards, as though hee would make them valgous; and in those that are valgous, hee must thrust the bones inwards, as though hee would make them varous: neither is it sufficient to thrust them so, but they ought also to be retained there in their places after they are so thrust, for otherwise they being not well established, would slip back againe. What *valgus* is.

They must bee stayed in their places by applying of collers and bolsters on that side whereunto the bones doe leane and incline themselves; for the same purpose boots may be made of leather, of the thicknesse of a testone, having a slit in the former part all along the bone of the leg, and also under the sole of the foot, that being drawne together on both sides, they may be the better fitted, and fit the closer to the leg. And let this medicine following be applyed all about the leg. *Rx. tburis, mastich. aloës, boli armeni, an. ʒi. aluminis roch. resina pini sicca, subtilissime pulveris. an. ʒiii. farina volat. ʒiʒ. album. ovor. q. s.* make thereof a medicine. You may also adde a little turpentine, lest it should dry sooner, or more vehemently than is necessary. But you must beware, and take great heed lest that such as were of late varous or valgous should attempt or straine themselves to goe before that their joynts be confirmed, for so the bones that were lately set in their places, may slip aside againe. And more-

A plaster to hold fast restored bones.

over, untill they are able to goe without danger, let them weare high shooes tyed close to their feet, that the bones may be stayed the better and more firmly in their places, but let that side of the soale of the shooe be underlayed whither the foote did incline before it was restored.

The forme of little bootes, whereof the one is open and the other shut.

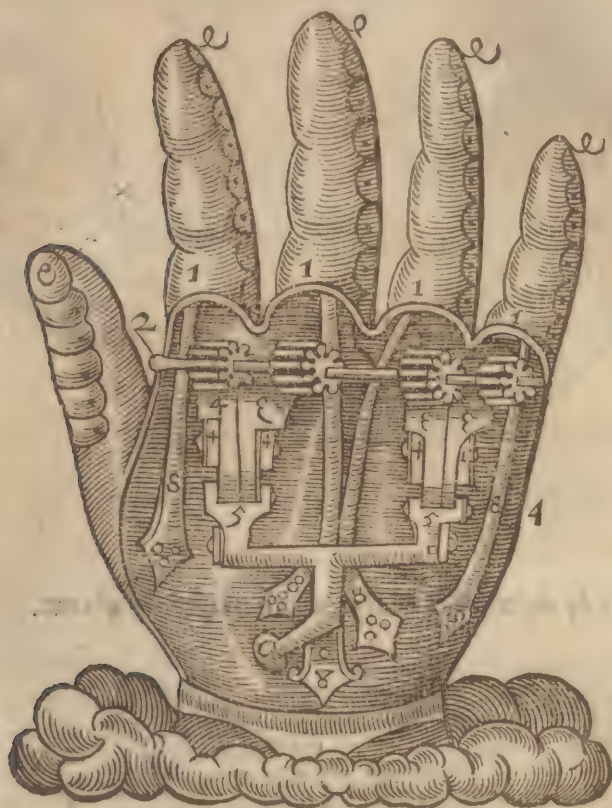


CHAP. XII.

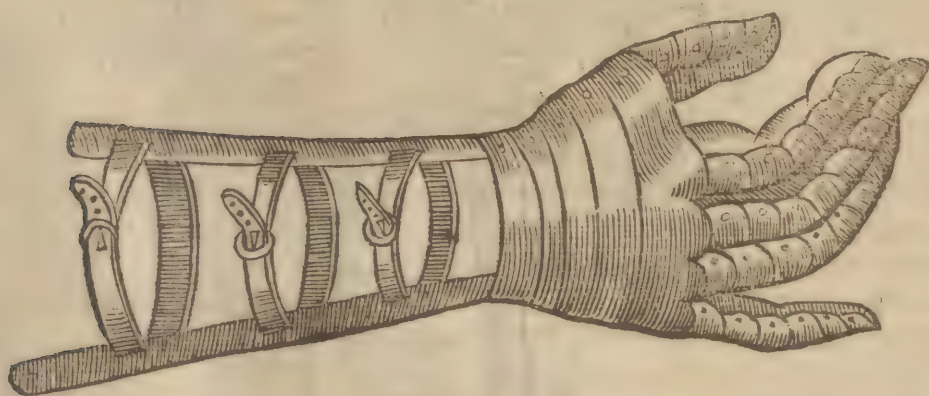
By what meanes armes, legs, and hands may be made by art, and placed in stead of the naturall armes, legs, or hands that are cut off and lost.

Necessity oftentimes constraines us to find out the meanes whereby we may help and imitate nature, and supply the defect of members that are perished and lost. And hereof it commeth that we may performe the functions of going, standing and handling with armes and hands made by art, and undergoe our necessary flexions and extensions with both of them. I have gotten the formes of all those members made so by art, and the proper names of all the engines and instruments wherby those artificially made are called, to my great cost and charges, of a most ingenious & excellent Smith dwelling at Paris, who is called of those that know him, and also of strangers, by no other name than the little *Lorraine*, and here I have caused them to bee portrayed or set downe, that those that stand in neede of such things, after the example of them, may cause some Smith, or such like workman to serve them in the like case. They are not onely profitable for the necessity of the body, but also for the decency and comelienesse thereof. And here followeth their formes.

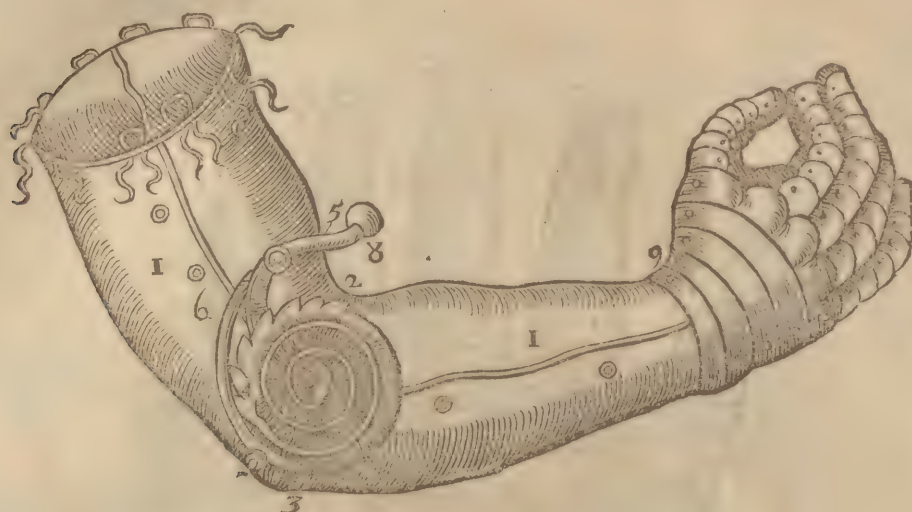
The forme of an hand made artificially of iron.



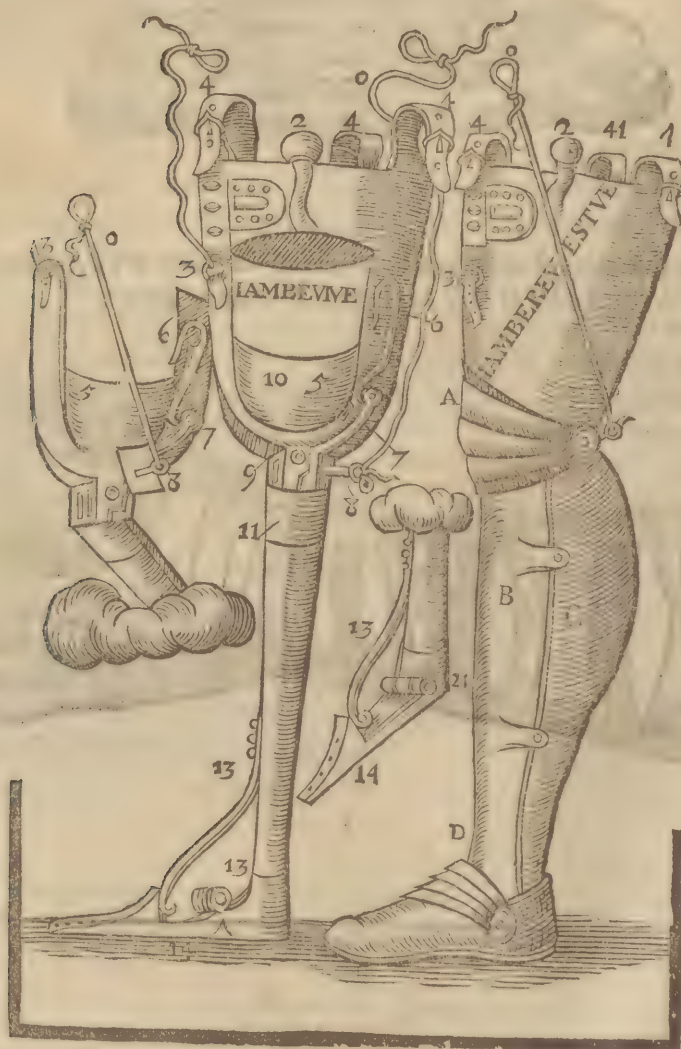
This figure following sheweth the back-side of an hand artificially made, and so that it may be tyed to the arme or sleeve.

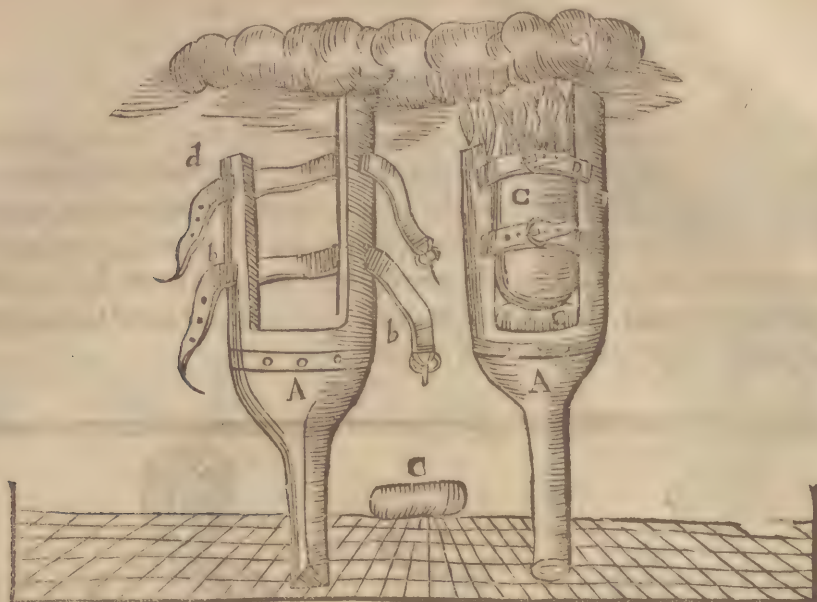


The forme of an arme made of iron very artificially.



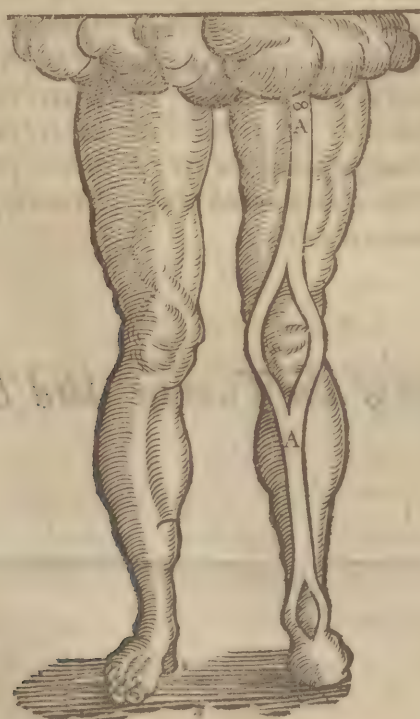
The description of legs made artificially of iron.



The forme of a wooden Leg made for poore men.

A. Sheweth the stump or stock of the wooden leg. BB. Sheweth the two staves which must bee on both sides of the leg, the shorter of them must bee on the inner side. CC. Sheweth the pillow or bolster whereon the knee must rest in the bottome between the two staves, that so it may rest the softer. DD. Sheweth the thongs or girths with their round buckles, put through the two staves on either side to stay the knee in his place firm and immoveable, that it slip not aside. E. Sheweth the thigh it selfe, that you may know after what fashion it must stand.

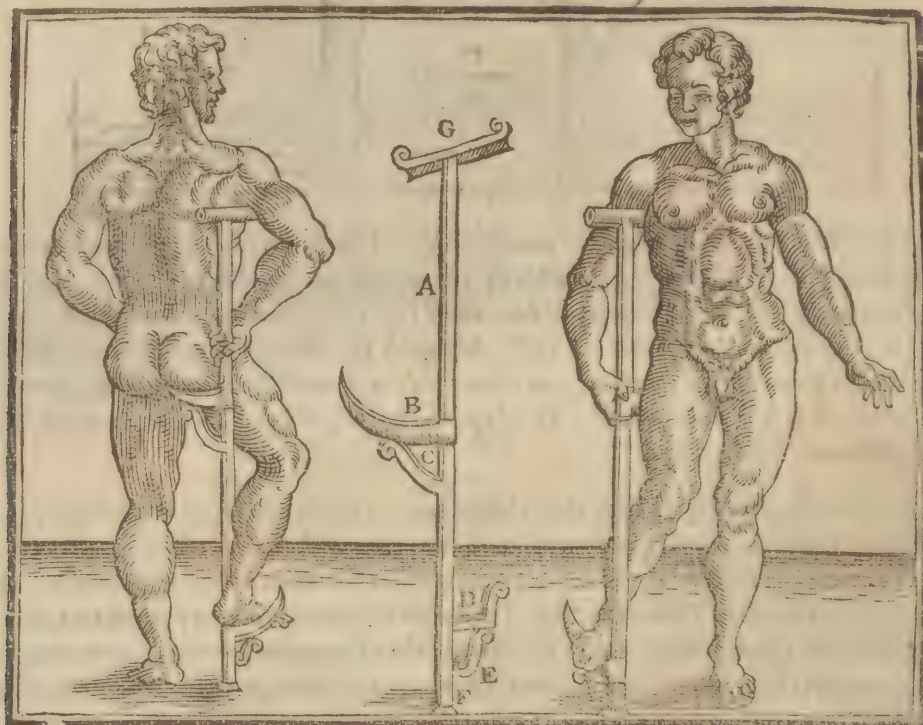
It happens also many times, that the patient, that hath had the nerves or tendons of his leg wounded, long after the wound is whole and consolidated, cannot goe but with very great paine and torment, by reason that the foot cannot follow the muscle, that should draw it up. That this maladie, may be remedied you ought to fasten a linnen band made very strong, unto the shooe that the patient weareth on that his pained foot, and at the knee it must have a slit where the knee may come forth in bowing of the leg, & it must be trussed up fast unto the patients middle, that it may the better lift up and erect the foot in going. This band is marked in the figure following with the letters A A.



CHAP. XIII.

Of amending or helping lamenesse or halting.

Halting is not onely a great deformity, but also very troublesome and grievous. Therefore if that any man be grieved therewith by reason that one of his legs is shorter than the other, it may be holpen by putting under his short foot this sitting crutch, which we are now about to describe. For by the helpe of this, he shall not onely goe upright, but also more easily and with little labour or no pain at all. It was taught mee by *Nicholas Picard* Chirurgian to the Duke of Loraine. The forme thereof is this.



A. Sheweth the staffe or stilt of this crutch, which must bee made of wood. B. Sheweth the seat of iron whereon the thigh resteth, just under the buttocke. C. Sheweth a prop which stayeth up the seat whereon all the weight of the patients body resteth. D. Sheweth the stirrop, being made of iron, and bowing crooked upwards, that the foot may stand firm, and not slip off it when the patient goeth. E. Sheweth the prop that stayeth or holdeth up the stirrop to strengthen it. F. Sheweth the foote of the stilt or crutch made of iron with many pikes, and compassed with a ring or ferule, so to keepe it from slipping. G. The crosse or head of the crutch which the patient must put under his arme-hole to leane upon, as it is to be seene in the figure.

The End of the Twentie third Booke.



OF THE GENERATION OF MAN.

THE TWENTY FOURTH BOOK.

THE PREFACE.

GOD, the Creator and maker of all things, immediately after the Creation of the world, of his unspeakable counsell and inestimable wisdom not onely distinguished mankind, but all other living creatures also, into a double sex, to wit, of male and female; that so they being moved and enticed by the allurements of lust, might desire copulation, thence to have procreation. For this bountifull Lord hath appointed it as a solace unto every living creature against the most certaine & fatall necessity of death: that for as much as each particular living creature cannot continue for ever, yet they may endure by their species or kinde by propagation and succession of creatures, which is by procreation, so long as the world endureth. In this conjunction or copulation, replenished with such delectable pleasure, which God hath chiefly established by the law of Matrimony, the male and female yeeld forth their seeds, which presently mixed and conjoynd, are received and kept in the females wombe. For, the seed is a certaine spumous or foamie humour replenished with vitall spirit, by the benefit whereof, as it were by a certain ebullition or fermentation, it is puffed up and swolne bigger, and both the seedes being separated from the more pure bloud of both the parents, are the materiall and formall beginning of the issue, for the seede of the male being cast and received into the wombe, is accounted the principall and efficient cause, but the seede of the female is reputed the subjacent matter, or the matter whereon it worketh. Good and laudable seede ought to bee white, shining, clammy, knotty, smelling like unto the elder or palme, delectable to bees, and sinking downe to the bottome of water being put into it, for that which swimmeth on the water is esteemed unfruitfull; for a great portion commeth from the brain, yet some thereof fallles from the whole body, & from all the parts both firme and soft thereof. For unlesse it come from the whole body, & every part thereof, all & every part of the issue cannot be formed thereby: because

The distinction of male and female.

The cause of this distinction.

What seed is.

The conditions of good seed.

Seed falleth from all the parts of the body.

like

Wherefore many diseases are hereditary.

How seed is to be understood to fall from the whole body.

like things are engendered of their like: and therefore it commeth that the child resembleth the parents, not onely in stature and favour, but also in the conformation and proportion of his lims and members, and complexion and temperature of his inward parts, so that diseases are oft times hereditary, the weaknesse of this or that entrall being translated from the parent to the childe. There are some which suppose this falling of the seed from the whole body not to be understood according to the weight and matter, as if it were a certaine portion of all the blood separated from the rest; but according to the power and forme, that is to say the animall, naturall, and vitall spirits, being the framers of formation and life, and also the formative faculty to fall down from all the parts into the seed, that is wrought or perfected by the Testicles, for prooffe and confirmation whereof, they alledge that many perfect, sound, absolute, and well proportioned children, are borne of lame and decrepit parents.

CHAP. I.

Why the generative parts are endued with great pleasure.



Certaine great pleasure accompanieth the function of the parts appointed for generation, and before it, in living creatures that are of a lusty age, when matter aboundeth in those parts, there goeth a certaine fervent or furious desire: the causes thereof are many, of which the chiefeft is, That the kind may be preserved and kept for ever, by the propagation and substitution of other living creatures of the same kinde. For brute beasts which want reason, and therefore cannot bee solicitous for the preservation of their kinde, never come to carnall copulation, unlesse they be moved thereunto by a certaine vehement provocation of unbridled lust, and as it were by the stimulation of venery. But man, that is endued with reason, being a divine and most noble creature, would never yeeld nor make his minde subject to a thing so abject and filthy as is carnall copulation, but that the venereous ticklings, raised in those parts, relaxe the severity of his mind, or reason admonish him that the memory of his name ought not to end with his life, but to be preserved unto all generations, as farre as may be possible, by the propagation of his seed or issue. Therefore by reason of this profit or commodity, nature hath endued the genitall parts with a far more exact or exquisite sense than the other parts, by sending the great sinewes unto them, and moreover she hath caused them to be bedewed or moistened with a certain whayish humour, not much unlike the seed sent from the glandules or kernells called *prostate*, situated in men at the beginning of the necke of the bladder, but in women at the bottome of the wombe: this moisture hath a certaine sharpenesse or biting, for that kinde of humour of all others can chiefly provoke those parts to their function or office, and yeeld them a delectable pleasure, while they are in the execution of the same. For even so whayish and sharpe humours, when they are gathered together under the skinne, if they waxe warme, tickle with a certaine pleasant itching, and by their motion inferre delight: but the nature of the genitall parts or members is not stirred up or provoked to the expulsion of the seed with these provocations of the humours, abounding either in quantity or quality onely, but a certaine great and hot spirit or breath contained in those parts, doth begin to dilate it selfe more and more, which causeth a certaine incredible excesse of pleasure or voluptuousnesse, wherewith the genitalls being replete, are spread forth or distended every way unto their full greatnesse. The

What moveth a man to copulation.

Why the genitalls are endued with a whayish moisture.

yard is given to men whereby they may cast out their seed directly or straightly into the womans wombe, and the necke of the wombe to women, whereby they may receive that seed so cast forth, by the open or wide mouth of the same necke, and also that they may cast forth their owne seed, sent through the spermaticke vessels unto their testicles; these spermaticke vessels, that is to say, the veine lying above, and the artery lying below, do make many flexions or windings, yet one as many as the other, like unto the tendrills of vines diversly platted or folded together, and in these folds or bendings the blood and spirit which are carryed unto the testicles, are concocted a longer time, and so converted into a white feminall substance. The lower of these flexions or bowings doe end in the stones or testicles. But the testicles, for as much as they are loose, thin, and spongy or hollow, receiving the humour which was begun to be concocted in the forenamed vessels, concoct it again themselves: but the testicles of men concoct the more perfectly for the procreation of the issue; & the testicles of women more imperfectly, because they are more cold, lesse, weake and feeble, but the seed becommeth white by the contact or touch of the testicles, because the substance of them is white. The male is such as engendereth in another, and the female in her selfe, by the spermaticke vessels which are implanted in the inner capacity of the womb. But out of all doubt unlesse nature had prepared so many allurements, baits, and provocations of pleasure, there is scarce any man so hot or delighted in venereous acts, which considering and marking the place appointed for humane conception, the loathsomnesse of the filth which daily falleth downe unto it, and wherewithall it is humected and moistened, and the vicinity and neerenesse of the great gut under it, and of the bladder above it, but would shun the embraces of women. Nor would any woman desire the company of man, which once premeditates or forethinks with her selfe on the labour that shee shall sustaine in bearing the burthen of her childe nine moneths, and of the almost deadly paines that she shall suffer in her delivery.

The cause of the foldings of the spermaticke vessels.

Womens testicles more imperfect.

Why many men and women abhorre venereous copulation.

Men that use too frequent copulation, oftentimes in stead of seed cast forth a crude and bloody humor, and sometimes also meer blood it selfe; and oft times they can hardly make water but with great pain, by reason that the clammy and oily moisture, which nature hath placed in the glandules called *prostate*, to make the passage of the urine slippery, & to defend it against the sharpenesse of the urine that passeth through it, is wasted, so that afterward they shal stand in need of the help of a Surgion to cause them to make water with ease & without pain, by injecting a little oile out of a siringe into the conduit of the yard. For generation it is fit the man cast forth his seed into the wombe with a certaine impetuosity, his yard being stiffe and distended, and the woman to receive the same without delay into her wombe, being wide open, lest that through delay the seed waxe cold, and so become unfruitfull by reason that the spirits are dissipated and consumed. The yard is distended or made stiffe, when the nervous, spongy, and hollow substance thereof is replete and puffed up with a flatulent spirit. The womb allures or drawes the masculine seed into it selfe by the mouth thereof, and it receives the womans seed by the hornes from the spermatick vessels, which come from the womans testicles into the hollownesse or concavity of the womb, that so it may be tempered by conjunction, commistion & confusion with the mans seed, and so reduced or brought unto a certaine equality: for generation or conception cannot follow without the concurrence of two seeds, well and perfectly wrought in the very same moment of time, nor without a laudible disposition of the wombe both in temperature and complexion: if in this mixture of seeds the mans seed in quality and quantity exceed the womans, it will be a man child, if not, a woman childe, although that in either of the kindes there is both the mans and womans seed, as you may see by the daily experience of those men who by their first wives have had boyes onely, and by their second wives had girles onely: the like you may see in certaine women, who by their first husbands have had males onely, and by their second husbands females onely. Moreover, one and the same man is not alwaies like affected to get a man or a woman childe, for by reason of his age, temperature and diet, hee doth sometimes yeeld forth seed endued with a masculine vertue, and sometimes with a feminine or weake vertue, so that it is no marvaile if men get sometimes men, and sometimes women children.

Why the straggery ensueth immoderate copulation.

What things necessary unto generation.

Why a male, & why a female is engendered.

CHAP. II.

Of what quality the seed is, whereof the male, and whereof the female
is engendered.

Why men children are sooner formed in the wombe than women.
The seed is that in power from whence each thing commeth or floweth.

Why the children are most commonly like unto their fathers.

When children should be begotten.

Why often times the child resembleth the Grandfather.

Why sometime those that are diseased do get sound children.



Male children are engendered of a more hot and dry seed, and women of a more cold and moist: for there is much lesse strength in cold than in heat, and likewise in moisture than in drynesse; and that is the cause why it will be longer before a girle is formed in the womb than a boy. In the seed lyeth both the procreative and the formative power: as for example; In the power of the Melon seed are situate the stalkes, branches, leaves, flowers, truite, the forme, colour, smell, taste, seed and all. The like reason is of other seeds; so Apple grafts engrafted in the stock of a Pearetree, beare Apples; and we doe alwaies finde and see by experience, that the tree (by vertue of grafting) that is grafted, doth convert it selfe into the nature of the Sions wherewith it is grafted. But although the childe that is borne doth resemble or is very like unto the father or the mother, as his or her seed exceedeth in the mixture, yet for the most part it happeneth that the children are more like unto the father than the mother, because that in the time of copulation, the minde of the woman is more fixed on her husband, than the minde of the husband on, or towards his wife: for in the time of copulation or conception, the formes, or the likenesses of those things that are conceived or kept in minde, are transported and impressed in the childe or issue; for so they affirme that there was a certain Queene of the Æthiopians who brought forth a white child, the reason was (as she confessed) that at the time of copulation with her King, she thought on a marvellous white thing, with a very strong imagination. Therefore *Hesiod* advertiseth all married people not to give themselves to carnall copulation when they return from burialls, but when they come from feasts and plaies, lest that their sad, heavie, and pensive cogitations, should bee so transfused and engrafted in the issue, that they should contaminate or infect the pleasant joyfulness of his life, with sad, pensive and passionate thoughts. Sometimes it happeneth, although very seldome, the childe is neither like the father nor the mother, but in favour resembleth his Grandfather, or any other of his kindred, by reason that in the inward parts of the parents, the engrafted power and nature of the grandfather lieth hidden: which when it hath lurked there long, not working any effect, at length breakes forth by means of some hidden occasion: wherein nature resembleth the Painter, making the lively portraiture of a thing, which as far as the subject matter will permit, doth forme the issue like unto the parents in every habit; so that often times the diseases of the parents are transferred or participated unto the children, as it were by a certaine hereditary title: for those that are crooke-backt get crooke-backt children, those that are lame, lame; those that are leprous, leprous; those that have the stone, children having the stone; those that have the ptficke, children having the ptfick; and those that have the gout, children having the gout: for the seed followes the power, nature, temperature, and complexion of him that engendereth it. Therefore of those that are in health and sound, healthy and sound; and of those that are weake and diseased, weake and diseased children are begotten, unlesse happely the seed of one of the parents that is sound doth correct or amend the diseased impression of the other that is diseased, or else the temperate and sound wombe as it were by the gentle and pleasant breath thereof.

CHAP. III.

What is the cause why the Females of all brute beasts, being great with young, doe neither desire, nor admit the males, untill they have brought forth their Young.



He cause hereof is, that, forasmuch as they are moved by sense only, they apply themselves unto the thing that is present, very little, or nothing at all perceiving things that are past, and to come. Therefore after they have conceived, they are unmindfull of the pleasure that is past, and doe abhor copulation: for the sense or feeling of lust is given unto them by nature, onely for the preservation of their kinde, and not for voluptuousnesse, or delectation. But the males

Why the sense of venereous acts is given to brute beasts.

Why of brute beasts, the males raging with lust, follow after the females.

Wherefore a woman when she is with child, desireth copulation.

raging, swelling, and as it were stimulated by the provocations of the heat, or fervency of their lust, do then runne unto them, follow and desire copulation, because a certaine strong odour or smell commeth into the aire from their secret or genitall parts, which pierceth into their nostrills, and unto their braine, and so interreth an imagination, desire, and heat. Contrariwise, the sense and feeling of venereous actions seemeth to be given by nature to women, not onely for the propagation of issue and for the conservation of mankind, but also to mitigate and assuage the miseries of mans life, as it were by the entisements of that pleasure: also the great store of hot blood that is about the heart, wherewith men abound, maketh greatly to this purpose, which by impulsions of imagination, which ruleth the humours, being driven by the proper passages, downe from the heart and entralls into the genitall parts, doth stirre up in them a new lust.

The males of brute beasts, being provoked or moved by the stimulations of lust, rage, and are almost burst with a *Tentigo* or extension of the genitall parts, and sometimes waxe mad, but after that they have satisfied their lust with the female of their kinde, they presently become gentle, and leave off such fiercenesse.

CHAP. IIII.

What things are to be observed, as necessary unto generation in the time of copulation.



When the husband commeth into his wives chamber hee must entertaine her with all kinde of dalliance, wanton behaviour, and allurements to venery: but if he perceive her to be slow, and more cold, he must cherish, embrace, and tickle her, and shall not abruptly, the nerves being suddenly distended, breake into the field of nature, but rather shall creepe in by little and little, intermixing more wanton kisses with wanton words and speeches, handling her secret parts and dugs, that she may take fire and bee enflamed to venery, for so at length the wombe will strive and waxe fervent with a desire of casting forth its owne seed, and receiving the mans seed to bee mixed together therewith. But if all these things will not suffice to enflame the woman, for women for the most part are more slow and slack unto the expulsion or yeelding forth of their seed, it shall be necessary first to foment her secret parts with the decoction of hot herbes made with Muscadine, or boiled in any other good wine, and to put a little muske or civet into the neck or mouth of the wombe: and when shee shall perceive the efflux of her seed to approach, by reason of the tickling pleasure, shee must advertise her husband thereof, that at the very instant time or moment, hee may also yeeld forth his seed, that by the concurrence or meeting of the seeds, conception may be made, and so at length a child formed and borne. And that it may have the better successe, the husband must not presently separate himselfe from his wives embraces, lest the aire strike into the open wombe,

How women may be moved to venery and conception.

The meeting of the seeds most necessary for generation.

F f f f

and

and so corrupt the seeds before they are perfectly mixed together. When the man departs, let the woman lye still in quiet, laying her legges or her thighes acrosse, one upon another, and raising them up a little, lest that by motion or downward situation, the seed should be shed or spilt: which is the cause why she ought at that time not to talk, especially chiding, nor to cough, nor sneese, but give herselfe to rest and quietnesse, if it be possible.

CHAP. V.

*By what signes it may bee knowne whether the woman have conceived
or not.*



IF the seed in the time of copulation, or presently after be not spilt, if in the meeting of the seedes the whole body doe somewhat shake, that is to say, the wombe drawing it selfe together for the compression & entertainment therof, if a little feeling of pain doth runne up and downe the lower belly and about the navell, if shee be sleepy, if she loath the embracings of a man, and if her face bee pale, it is a token that she hath conceived.

Spots or specks
in the faces of
those that are
with childe.

Why many wo-
men being great
with childe re-
fuse laudable
meates, and de-
fine those that
are illaudable &
contrary to na-
ture.

The suppressed
tearmes divided
into three parts.

Hip. 1. de morb.
mul.

Aph. 41. sect. 5.

In some, after conception spots or freckles arise in their face, their eyes are depressed and sunke in, the white of their eyes waxeth pale, they waxe giddy in the head, by reason that the vapours are raised up from the menstruall blood that is stopped, fadnesse & heavinesse grieve their mindes, with loathing and waywardnesse, by reason that the spirits are covered with the smoaky darkenesse of the vapours: paines in the teeth and gummies, and swooning often times commeth, the appetite is depraved or overthrown, with aptnesse to vomit, and longing, whereby it happeneth that they loath meates of good juice, and long for and desire illaudable meates, and those that are contrary to nature, as coales, dirt, ashes, stinking salt-fish, sowre, austere and tart fruits, pepper, vinegar, and such like acride things, and other, altogether contrary to nature and use, by reason of the condition of the suppressed humour abounding & falling into the orifice of the stomach. This appetite so depraved or overthrown, endureth in some untill the time of childe-birth; in others it commeth in the third moneth after their conception, when haire do grow on the childe, and lastly it leaveth them a little before the fourth moneth, because that the child, being now greater and stronger, consumes a great part of the excrementall and superfluous humour. The suppressed or stopped tearmes in women that are great with childe, are divided into three parts: the more pure portion maketh the nutriment for the childe, the second ascendeth by little and little into the dugs, and the impurest of all remaineth in the womb about the infant, and maketh the secundine or after-birth, wherein the infant lieth as in a soft bed. Those women are great with child whose urine is more sharpe, fervent, and somewhat bloody, the bladder not only waxing warme by the compression of the wombe, fervent by reason of the blood contained in it, but also the thinner portion of the same blood being expressed, and sweating out into the bladder. A swelling and hardnesse of the dugs, and veines that are under the dugs in the breastes and about them, and milke comming out when they are pressed, with a certaine stirring motion in the belly, are certaine infallible signes of greatnesse with childe. Neither in this greatnesse of childe bearing, the veines of the dugges onely, but of all the whole body, appeare full and swelled up, especially the veines of the thighes and legges, so that by their manifold folding and knitting together, they do appeare varicous, whereof commeth sluggishnesse of the whole body, heavinesse & impotency or difficulty of going, especially when the time of deliverance is at hand. Lastly, if you would know whether the woman have conceived or not, give unto her when she goeth to sleepe, some meed or honyed water to drink, and if she have a griping in her guts or belly, she hath conceived, if not, she hath not conceived.

CHAP. VI.

That the wombe, so soone as it hath received the seede, is presently contracted or drawne together.



After that the seeds of the male and female have both met, and are mixed together in the capacity of the wombe, then the orifice thereof doth draw it selfe close together, lest the seedes should fall out. There the females seede goeth and turneth into nutriment and the encrease of the males seede, because all things are nourished and doe encrease by those things that are most familiar and like unto them. But the similitude and familiarity of

Why the female seede is nutriment for the male seede.

seede with seede is farre greater than with bloud, so that when they are perfectly mixed and coagulated, and so waxe warme by the straight and narrow inclosure of the wombe, a certaine thinne skinne doth grow about it, like unto that that will bee over unscimmed milke.

Moreover, this concretion or congealing of the seede, is like unto an egge layed before the time that it should: that is to say, whose membrane or tunicle that compasseth it about, hath not as yet encreased or growne into a shelly hardnesse about it; in folding-wise are seene many small threads dividing themselves, over-spread with a certaine clammy, whitish or red substance, as it were with blacke bloud. In the midst under it appeareth the navell, from whence that small skinne is produced. But a man may understand many things that appertain unto the conception of mankind by the observation of twenty egges, setting them to bee hatched under an Henne, and taking one every day and breaking it, and diligently considering it; for in so doing, on the twentieth day you shall finde the Chicke perfectly formed with the navell. That little skin that so compasseth the infant in the wombe is called the secundine or *Chorion*, but commonly the after-birth.

A compendious way to understand humane conception.

This little skinne is perfectly made within sixe dayes, according to the judgment of *Hippocrates*, as profitable and necessary not onely to containe the seeds so mixed together, but also to sucke nutriment through the orifices of the vessels ending in the wombe. Those orifices the Greekes doe call *Cotyledones*, and the Latines *Acetabula*, for they are as it were hollowed eminences, like unto those, which may bee seene in the fecte or snout of a Cuttle fish many times in a double order, both for the working and holding of their meate. Those eminences called *Acetabula* doe not so greatly appeare in women as in many brute beasts. Therefore by these the secundine cleaveth on every side unto the wombe, for the conservation, nutrition, and encrease of the conceived seede.

Lib. de nat. puer.

What the *Cotyledones* are.

CHAP. VII.

Of the generation of the navell.



After the woman hath conceived, to every one of the aforesaid eminencies groweth presently another vessell, that is to say, a veine to the veine, and an artery to the artery: these soft and yet thin vessels, are framed with a little thin membrane, which being spread under, sticketh to them, for to them it is in stead of a membrane, and a ligament and a tunicle or a defence, and it is doubled with the others, and made of the veine and artery of the navell, to compass the navell. These new small vessels of the infant, with their orifices, doe answer directly one to one to the cotyledones or eminences of the womb, they are very swall and little, as it were the hairy fibres that grow upon roots that are in the earth, and when they have continued so a longer time, they are combined together, that of two they are made one vessell, until that by continuall connexion, all those vessels go and degenerate into two other great vessels, called the umbilicall

The veine never
joyneth it selfe
with the artery.

licall vessels, or the vessels of the navell, because they do make the navell, and do enter into the child's body by the hole of the navell. Here *Galen* doth admire the singular providence of God and Nature, because that in such a multitude of vessels, and in so long a passage or length that they go or are produced, the vein doth never confound it selfe nor stick to the artery, nor the artery to the veine, but every vessell joyneth it selfe to the vessell of its owne kinde. But the umbilicall veine or navell veine, entering into the body of the child, doth joine it self presently to the hollow part of the liver, but the artery is divided into two, which joine themselves to the two iliack arteries along the sides of the bladder, & are presently covered with the *peritonaeum*, & by the benefit thereof are annexed unto the parts which it goes unto. Those small veines and arteries are as it were the rootes of the child, but the veine and artery of the navell are as it were the body of the tree, to bring down the nutriment to nourish the child. For first we live in the wombe the life of a plant, and then next the life of a sensitive creature; and as the first tunicle of the child is called *Chorion* or *Allantoides*, so the other is called *Amnios* or *Agnina*, which doth compasse the seed or child about on every side. These membranes are most thin, yea for their thinnesse like unto the spiders web, woven one upon another, and also connexed in many places by the extremities of certaine small and hairy substances, which at length by the adjunction of their like do get strength; wherby you may understand, what is the cause why by divers and violent motions of the mother in going and dancing or leaping, and also of the infant in the wombe, those membranes are not almost broken. For they are so conjoynd by the knots of those hairie substances, that betweene them nothing, neither the urine nor the sweate can come, as you may plainly and evidently perceive in the dissection of a womans body that is great with child, not depending on any other mans opinion, be it never so old or inveterate: yet the strength of those membranes is not so great but that they may bee soone broken in the birth by the kicking of the child.

Hippocrates calleth all the membranes that compasse the infant in the wombe, according to the judgement of *Galen* in his booke de usu partium, by the name of the secundines.

CHAP. VIII.

Of the umbilicall vessels, or the vessels belonging to the navell.

An old opinion
confuted.



Any of the ancient Writers have written that there are five vessels found in the navell. But yet in many, nay all the bodies I sought in for them, I could never finde but three, that is to say, one veine, which is very large, so that in the passage thereof it will receive the ragge of a poynt, and two arteries, but not so large, but much narrower, because the childe wanteth or standeth in need of much more blood for his conformation and the nutriment or increase of his parts, than of vitall spirit.

To what use the
knots of the
childs navell in
the wombe ser-
veth.

These vessels making the body of the navell, which, as it is thought, is formed within nine or tenne dayes, by their doubling and folding, make knots like unto the knots of a Franciscan Friars girdle, that staying the running blood in those their knotty windings, they might more perfectly concoct the same: as may be seene in the ejaculatory spermatick vessels, for which use also the length of the navell is halfe an ell, so that in many infants that are somewhat growne, is found three or foure times doubled about their neck or thigh.

The child in the
wombe taketh
his nutriment
by his navell,
not by his
mouth.

As long as the childe is in his mothers wombe, hee taketh his nutriment onely by the navell, and not by his mouth, neither doth hee enjoy the use of eyes, eares, nostrils or fundament, neither needeth hee the functions of the heart. For spirituous blood goeth unto it by the arteries of the navell, and into the iliack arteries, and from the iliack arteries unto all the other arteries of the whole body, for by the motion of these onely the infant doth breathe. Therefore it is not to bee supposed that aire is carryed or drawne in by the lungs unto the heart, in the body of the childe, but contrariwise from the heart to the lungs. For neither the heart doth performe the generation or working of blood, or of the vitall spirits. For the issue or infant is con-

How the child
breatheth.

tentent

tented with them as they are made and wrought by his mother. Which, untill it hath obtained a full, perfect and whole description of his parts and members, cannot be called a child, but rather an embrion, or an imperfect substance.

CHAP. IX.

of the ebullition or swelling of the seed in the wombe, and of the concretion of the bubbles or bladders, or the three principall entralls.



IN the sixe first dayes of conception the new vessels are thought to bee made and brought forth of the eminences or corylidons of the mothers vessels, and disperfed into all the whole seede, as they were fibres or hairy strings. Those as they pierce the wombe, so do they equally and in like manner penetrate the tunicle *Chorion*. And it is carried this way, being a passage not only necessary for the nutriment and conformation of the parts, but

also into the veines diversly woven and disperfed into the skin *Chorion*. For thereby it commeth to passe that the seed it selfe boileth, and as it were fermenteth or swel- leth, not onely through occasion of the place, but also of the blood and vitall spirits that flow unto it, and then it riseth into the bubbles or bladders, like unto the bub- bles which are occasioned by the raine falling into a river or channell full of water.

These three bubbles or bladders, are certain rude or new formes or concretions of the three principall entralls, that is to say, of the liver, heart and braine. All this for-

The three bladders.

mer time it is called seed, and by no other name; but when those bubbles arise, it is

When the seede is called an embrion.

called an embrion, or the rude forme of a body untill the perfect conformation of all the members: on the fourth day after that the veine of the navell is formed, it

sucketh grosser blood, that is, of a more fuller nutriment out of the *Corylidons*. And this blood, because it is more grosse, easily congeales & curdles in that place, where it

Why the liver is called Paren- chyma.

ought to prepare the liver fully & absolutely made. For then it is of a notable great bignesse above all the other parts, & therefore it is called *parenchyma*, because it is but

only a certain congealing or concretion of blood brought together thither or in that place. From the gibbous part thereof springeth the greater part or trunk of the hol-

low veine, called commonly *vena cava*, which doth disperse his small branches, which are like unto haire, into also the substance thereof: and then it is divided in-

to two branches, whereof the one goeth upwards, the other downwards unto all the particular parts of the body.

In the meane season the Arteries of the navell suck spirituouse blood out of the e- minences or *Corylidons* of the mothers arteries, whereof, that is to say, of the more fervent and spirituouse blood, the heart is formed in the second bladder or bubble, being endued with a more fleshy, sound and thicke substance, as it behooveth that vessell to bee, which is the fountaine from whence the heate floweth, and hath a con- tinuall motion.

In this the vertue formative hath made two hollow places, one on the right side, another on the left. In the right, the root of the hollow veine is infixed or ingrafted, carrying thither necessary nutriment for the heart; in the left is formed the stamp or roote of an artery, which presently doth divide it selfe into two branches, the greater whereof goeth upwards to the upper parts, and the wider unto the lower parts, carrying unto all the parts of the body life and vitall heat.

CHAP. X.

*Of the third bubble or bladder, wherein the head and the
braine is formed.*

Why the greater portion of seed goeth into generation of the head and braine.



He farre greater portion of the seede goeth into this third bubble, that is to say, yeelding matter for the conformation of the braine and all the head. For a greater quantity of seede ought to goe unto the conformation of the head and braine, because these parts are not sanguine or bloudy as the heart and liver, but in a manner without bloud; bonie, marrow, cartilaginous, nervous and membranous, whose parts, as the veines, arteries, nerves, ligaments, panicles, and skinne, are called spermaticke parts, because they obtaine their first conformation almost of seede onely: although that afterwards they are nourished with bloud, as the other fleshy and musculous parts are. But yet the bloud when it is come unto those parts, degenerateth and turneth into a thing somewhat spermatick, by vertue of the assimilative faculty of those parts. All the other parts of the head, forme and fashion themselves unto the forme of the braine when it is formed, and those parts which are situated and placed about it for defence especially, are hardened into bones.

Why the head is placed on the top of the body.

The head as the seate of the senses, and mansion of the minde and reason, is situated in the highest place, that from thence, as it were from a lofty tower or turret, it might rule and governe all the other members and their functions and actions, that are under it, for there the soule or life which is the rectresse or governeesse is situated; and from thence it floweth and is dispersed into all the whole body. Nature hath framed these three principall entralls as proppes and sustentations for the weight of all the rest of the body: for which matter also shee hath framed the bones.

The first bones that appeare to bee formed, or are supposed to be conformed, are the bones called *ossa Illium*, connexed or united by spondils that are betweene them: then all the other members are framed & proportioned by their concavities & hollownes, which generally are seaven, that is to say, two of the eares, two of the nose, one of the mouth, and in the parts beneath the head, one of the fundament, and another of the yard or conduit of the bladder; and furthermore in women, one of the necke of the wombe, without the which they can never bee made mothers or beare children.

Exod. 20. 9. 12.

When all these are finished, nature, that shee might polish her excellent worke in all sorts, hath covered all the body and every member thereof with skinne. Into this excellent work or *Microcosmos* so perfected, God, the author of nature and all things, infuseth or ingrafteth a soule or life: which St. *Augustine* proverth by this sentence of *Moses*: If any man smite a woman with child, so that thereby she be delivered before her naturall time, and the child bee dead, being first formed in the wombe, let him die the death: but if the child hath not as yet obtained the full proportion and conformation of his body and members, let him recompence it with mony. Therefore it is not to bee thought that the life is derived, propagated or taken from *Adam* or our parents, as it were an hereditary thing distributed unto all mankind by their parents; but we must believe it to be immediately created of God, even at the very instant time when the child is absolutely perfected in the lineaments of his body, and so given unto it by him.

The *mola* in the wombe liveth not as the child.

So therefore the rude lumps of flesh called *mola* that engender in womens wombes, and monsters of the like breeding and confused bignesse, although by reason of a certaine quaking and shivering motion, they seeme to have life, yet they cannot bee supposed to bee endued with a life or a reasonable soule: but they have their motion, nutriment and increase wholly of the naturall and infixed faculty of the wombe, and of the generative or procreative spirit that is engrafted naturally in the seed.

But even as the infant in the wombe obtaineth not perfect conformation before the thirtieth day, so likewise it doth not move before the fixtieth day: at which time

time it is most commonly not perceived by women, by reason of the smallnesse of the motion. But now let us speake briefly of the life or soule, wherein consisteth the principall originall of every function in the body, and likewise of generation.

CHAP. XI.

Of the life or soule.

THE soule entreth into the body, so soone as it hath obtained a perfect and absolute distinction and conformation of the members in the wombe: which in male children, by reason of the more strong and forming heate which is engrafted in them, is about the fortieth day, and in females about the forty fifth day, in some sooner, and in some later, by reason of the efficacy of the matter working, and plyantnesse or obedience of the matter whereon it worketh. Neither doth the life or soule being thus inspired into the body presently execute or performe all his functions, because the instruments that are placed about it cannot obtaine a firme and hard consistence necessary for the lively, but especially for the more divine ministeries of the life or soule, but in a long proceffe of age or time.

The life goeth not into the masse of seed that doth engender the child, before the body of the child and each part thereof hath his perfect proportion and forme. Why the life or soule doth not presently execute all his offices.

Those instruments of the soule are vitiated either in the first conformation, as when the forme or fashion of the head is sharpe upwards or piramydall, as was the head of *Thersites*, that lived in the time of the Trojan warre, and of *Triboulet* and *Tonin*, that lived in later yeares; or also by some casualty, as by the violent handling of the mydwife, who by compression, by reason that the scull is then tender and soft, hath caused the capacity of the ventricles that be under the braine to be too narrow for them: or by a fall, stroake, disorder in diet, as by drunkennesse, or a feaver, which inferreth a lithargie, excessive sleepeinesse, or a phrensie.

Presently after the soule is entred the body, God endueth it with divers and sundry gifts: hereof it cometh that some are endued with wisdom by the spirit; others with knowledge by the same spirit; others with the gift of healing by the same spirit; others with power, dominion and rule; others with prophesie; others with diversities of tongues; and to others other endowments, as it hath pleased the divine providence and bounty of God to bestow upon them, against which no man ought to contend or speake. For it is not meet that the thing formed should say unto him that formed it, why hast thou made mee on this fashion? hath not the Potter power to make of the same lumpe of clay one vessell to honour and another to dishonour? it is not my purpose, neither belongeth it unto mee or any other humane creature to search out the reason of those things, but onely to admire them with all humility: But yet I dare affirme this one thing, that a noble and excellent soule neglecteth elementary and transitory things, and is ravished and moved with the contemplation of celestiall, which it cannot freely enjoy before it bee separated from this earthly enclosure or prison of the body, and be restored unto its originall.

1 Cor. 6. 12.

Therefore the soule is the inward *Enictechia* or perfection, or the primitive cause of all motions and functions both naturall and animall, and the true forme of man. The Ancients have endeavoured to expresse the obscure sense thereof by many descriptions. For they have called it a celestiall spirit, and a superiour, incorporeall, invisible, an immortall essence, which is to bee comprehended of its selfe alone, that is, of the minde or understanding. Others have not doubted but that wee have our soules inspired by the universall divine minde, which as they are alive, so they doe bestow life on the bodies unto whom they are annexed or united. And although this life bee dispersed into all the whole body, and into every portion of the same, yet is it voyd of all corporall weight or mixtion, and it is wholly and alone in every severall part, being simple and indivisible, without all composition or mixture, yet endued with many vertues and faculties, which it doth utter in divers

What the soule or life is.

The life is in all the whole body, and in every portion thereof. The life or soule is simple and indivisible.

parts

Divers names,
and the reason
of divers names
that are given
to humane
formes.

parts of the body : For it feeleth, imagineth, judgeth, remembreth, understandeth, and ruleth all our desires, pleasures and animall motions ; it seeth, heareth, smelleth, tasteth, toucheth : and it hath divers names of these so many and so great functions which it performeth in divers parts of the body. It is called the soule or life, because it maketh the body live, which of it selfe is dead. It is called the spirit or breath, because it inspireth our bodies. It is called reason, because it discerneth truth from falshood, as it were by a certaine divine rule. It is termed the minde, because it is mindfull of things past, in recalling and remembring them : and it is called the vigour or courage, because it giveth vigour and courage to the sluggish weight or masse of the body. And lastly it is called the sense & understanding, because it comprehendeth things that are sensible and intelligible. Because it is incorporeall it cannot occupie a place by corporeall extension, although notwithstanding it filleth the whole body. It is simple, because it is but one in essence, not encreased nor diminished : for it is no lesse in a Dwarf than in a Gyant, and it is like perfect and great in an infant as in a man, according to its owne nature.

Three kinds of
living bodies.

The superiour
soule containeth
in it selfe all the
powers of the
inferiour.

But there are three kindes of bodies informed by a soule whereby they live : the first being the most imperfect, is of plants, the second of brute beasts, and the third of men. The plants live by a vegetative, beasts by a sensitive, and men by an intellectualive soule. And as the sensitive soule of brute beasts is endued with all the vertues of the vegetative, so the humane intellectualive comprehendeth the vertues of all the inferior, not separated by any division, but by being indivisibly united with reason and understanding, into one humane forme and soule whereon they depend. But because we have sayd a little before, that divers functions of the life are resident, and appeare in divers parts of the body, here in this place, omitting all others, wee will prosecute those only which are accounted the principall.

What the com-
mon sense is.

The function of
the common
sense is double.

The principall functions of a humane soule, according to the opinion of many, are foure in number, proceeding from so many faculties, and consequently from one soule ; they are these : The common Sense, Imagination, Reasoning, and Memory. And they thinke that the common or interior sense doth receive the formes and images of sensible things, being carryed by the spirit through the passage of the nerves, as an instrument of the externall senses, as it were a messenger to goe between them ; and it serves not onely to receive them, but also to know, perceive and discern them. For the eye, wherein the externall sense of seeing consisteth, doth not know white or blacke. Therefore it cannot discern the differences of colours, as neither the tongue tastes, nor the nose savours, nor the eares sounds, nor lastly, the hands their touching quality : yea, the eye doth not of it selfe perceive that it seeth, nor the nose that it smelleth, nor the eares that they heare, nor the tongue that it tasteth, nor the hands that they touch. For all these things are the offices and functions of the common sense ; for this sense knoweth that the eye hath seene some thing, either white, blacke, red, a man, horse, sheepe, or some such like materiall thing, yea, even when the sight is gone and past ; and so likewise the nose to have smelled this or that savour, the eare to have heard this or that sound, the tongue to have tasted this or that tast, and the hand to have touched this or that thing, bee they never so diverse. For all the externall senses, and all the functions thereof do end and are referred to the common sense, as it were the lines of a circle from the circumference into the centre, as it is expressed in this figure.



For what cause
the internall
sense is called
the common
sense.

For which cause it is called the common or principall sense, for that therein the primitive power of feeling or perceiving is situated, for it useth the ministry or service of the externall senses to know many and divers things, whose differences it doth

doth discerne and judge, but simple things, that are of themselves, and without any composition and connexion, which may constitute any thing true or false, or any argumentation, belongeth onely to the minde, understanding or reason. For this was the counsell of nature, that the externall senses should receive the formes of things superficially, lightly and gently onely, like as a glasse, not to any other end but that they should presently send them unto the common sense, as it were unto their center and prince, which he (that is to say the common sense) at length delivereth to be collected unto the understanding or reasoning faculty of the soule, which *Avicen* and *Averrois* have supposed to be situated in the former part of the braine.

The common sense understandeth or knoweth those things that are simple onely.

Next unto the common sense followeth the phantasie or imagination, so called, because of it arise the formes and Ideas that are conceived in the minde, called of the Geekes *Phantasmata*. This doth never rest but in those that sleepe: neither alwaies in them, for oft-times in them it causeth dreames, and causeth them to suppose they see and perceive such things as were never perceived by the senses, nor which the nature of things, nor the order of the world will permit. The power of this faculty of the minde is so great in us, that often it bringeth the whole body in subjection unto it.

What Imagination is.

For it is recorded in history, that *Alexander* the Great sitting at Table, and hearing *Timotheus* the Musician sing a martiall Sonnet unto his Citherne, that hee presently leaped from the table, and called for armes; but when againe the Musician mollified his tune, hee returned to the Table and sate downe as before. The power of Imagination caused by musically harmony, was so great, that it subjected to it the courage of the Worlds conquerour, by whose various motion, it would now as it were cause him to runne headlong to armes, and then pacifie and quiet him, and so cause him to returne to his chaire and banquetting againe. And there was one whosoever it was, who some few yeares agoe, seeing the Turke dance on a rope on high, with both his feet fastened in a bason, turned his eyes from so dangerous a sight or spectacle, although hee came to the place of purpose to see it, and was stricken with such feare, that his body shooke and heart quaked, for feare lest that by sudden falling downe headlong hee should breake his necke. Many looking downe from an high and lofty place, are so stricken with feare, that suddenly they fall downe headlong, being so overcome and bound with the imagination of the danger, that their owne strength is not able to sustaine them. Therefore it manifestly appeareth that God hath dealt most graciously and lovingly with us, who unto this power of imagination, hath joyned another, that is, the faculty or power of reason and understanding; which discerning false dangers and perils from true, doth sustain and hold up a man that he may not be overthrowne by them.

After this appeareth and approacheth to performe his function, the faculty of Reason, being the Prince of all the principall faculties of the soule; which bringeth together, composeth, joyneth and reduceth all the simple and divided formes or images of things into one heape, that by dividing, collecting and reasoning it might discerne and try truth from falshood.

What Reason is.

This faculty of Understanding or Reason is subject to no faculty or instrument of the body, but is free, and penetrateth into every secret, intricate and hidden thing, with an incredible celerity: by which a man seeth what will follow, perceiveth the originalls and causes of things, is not ignorant of the proceedings of things, he compareth things that are past with those that are present and to come, decreting what to follow, and what to avoyde. This bridled and withholdeth the furious motions of the minde, bridled the overhasty motions of the tongue, and admonisheth the speaker that before the words passe out of his mouth, hee ought with diligence and discretion to ponder and consider the thing whereof hee is about to speake.

The function of Reason.

After Reason and Judgement followeth Memory, which keeping and conserving all formes and images that it receiveth of the senses, and which Reason shall appoint, and as a faithfull keeper and conservator, receiveth all things, and imprinteth and scaleth them as well by their owne vertue and power, as by the impulsion and adherence of those things in the body of the braine, without any impression of the matter;

What Memory is.

Wisdomethe
daughter of me-
mory and ex-
perience.

matter; that when occasion serveth, we may bring them forth therehence as out of a treasure or store-house. For otherwise, to what purpose were it to reade, heare and note so many things, unlesse wee were able to keepe and retaine them in minde by the care and custody of the Memory or Braine? Therefore assuredly God hath given us this one onely remedy and preservative against the oblivion and ignorance of things, which although of it selfe and of its owne nature it bee of greater efficacie, yet by daily and often meditation it is trimmed and made more exquisite and perfect. And hence it was that the Ancients termed wisdom the daughter of memory and experience. Many have supposed that the mansion or seate of the Memory, is in the hinder part, or in the ventricle of the *Cerebellum*; by reason that it is apt to receive the formes of things, because of the engrafted drynesse and hardnesse thereof.

CHAP. XII.

Of the naturall excrements in generall, and especially of those that the childe or infant being in the wombe excludeth.

What an excre-
ment is.



Efore I declare what excrements the infant excludeth in the wombe and by what passages, I thinke it good to speak of the excrements which all men doe naturally voyde. All that is called an excrement which nature is accustomed to separate and cast out from the laudible and nourishing juice. There are many kinds of those excrements.

The excrement
of the first con-
coction.

The excrement
of the seond
concoction
is triple.

The first is of the first concoction, which is performed in the stomacke, which being driven downe into the intestines or guts, is voyded by the fundament.

The excrement
of the third con-
coction is triple.

The second cometh from the liver, and it usually is three-fold, or of three kinds; one cholericke, whereof a great portion is sent into the bladder of the gall, that by sweating out therehence, it might stirre up the expulsive faculty of the guts to expell and exclude the excrements. The other is like unto whay, which goeth with the blood into the veines, and is as it were a vehicle thereto to bring it unto all the parts of the body, and into every Capillar veine for to nourish the whole body; and after it hath performed that function, it is partly expelled by sweate, and partly sent into the bladder, and so excluded with the urine. The third is the melancholicke excrement, which being drawn by the milt, the purer and thinner part thereof goeth into the nourishment of the milt, and after the remnant is partly purged out downwards by the hæmorrhoidall veines, and partly sent to the orifice of the stomacke, to instimulate and provoke the appetite. The last cometh of the last concoction, which is absolved in the habit of the body, and breatheth out, partly by insensible transpiration, is partly consumed by sweating, and partly floweth out by the evident and manifest passages that are proper to every part: as it happeneth in the braine before all other parts; for it doth unloade it selfe of this kinde of excrement by the passages of the nose, mouth, eares, eyes, pallat bone and sutures of the scull.

Therefore if any of those excrements bee stayed altogether, or any longer than it is meete they should, the default is to bee amended by diet and medicine. Furthermore, there are other sorts of excrements not naturall, of whom wee have entreated at large in our booke of the pestilence.

The use of the
navell string.

When the infant is in the mothers wombe, untill hee is fully and absolutely formed in all the liniments of his body, hee sends forth his urine by the passage of the navell or *urachus*. But a little before the time of childe-birth, the *urachus* is closed, and then the man childe voydeth his urine by the conduit of the yard, and the woman childe by the necke of the wombe. This urine is gathered together and contained in the coate *Chorion* or *Allantoides*, together with the other excrements, that is to say, sweat, & such whayish superfluities of the menstruall matter, for the more easie bearing up of the floting or swimming childe. But in the time of child-birth, when the infant by kicking breaketh the membranes, those humours runne out, which when the mydwifes perceive, they take it as a certaine signe that the childe is at hand.

The signes of
speedy and easie
deliverance.

For

For if the infant come forth together with those waters, the birth is like to be more easie, and with the better successe; for the necke of the wombe and all the genitalls are so by their moisture relaxed and made slippery, that by the endeavour and stirring of the infant the birth will be the more easie, and with the better successe: contrariwise, if the infant bee not excluded before all these humours bee wholly flowed out and gone, but remaineth as it were in a dry place, presently through drinesse the necke of the wombe and all the genitalls will be contracted and drawne together, so that the birth of the childe will bee very difficult and hard, unlesse the necke of the wombe, to amend that default, be anointed with oile, or some other relaxing liquor. Moreover, when the childe is in the wombe, he voideth no excrements by the fundament, unlesse it be when at the time of the birth, the proper membranes and receptacles are burst by the striving of the infant, for hee doth not take his meat at the mouth, wherefore the stomacke is idle then, and doth not execute the office of turning the meats into *Chylus*, nor of any other concoction; wherefore nothing can goe downe from it into the guts. Neither have I seldome seene infants borne without any hole in their fundament, so that I have beene constrained with a knife to cut in sunder the membrane or tunicle that grew over and stopped it. And how can such excrements be engendered, when the childe being in the wombe, is nourished with the more laudable portion of the menstruall blood? therefore the issue or child is wont to yeeld or avoyd two kindes or sorts of excrements, so long as he is in the womb, that is to say, sweat and urine, in both which he swimmes; but they are separated by themselves, by a certaine tunicle called *Allantoides*, as it may be seene in kids, dogges, sheepe, and other brute beasts; for as much as in mankinde the tunicle *Chorion* and *Allantoides* or *Farciminalis* be all one membrane. If the woman be great of a man childe, she is more merry, strong, and better coloured, all the time of her child bearing, but if of a woman childe, she is ill coloured because that women are not so hot as men.

Children borne without a passage in their fundaments.

Aph. 42. sect. 5.

The males begin to stirre within three moneths and an halfe, but females after: if a woman conceive a male child, she hath all her right parts stronger to every work: wherefore they do begin to set forwards their right foot first in going, & when they arise they leane on the right arme, the right dug will sooner swell and waxe hard; the male children stirre more in the right side than in the left, and the female children rather in the left than in the right side.

Aph. 47. sect. 5.

CHAP. XIII.

With what travell the Childe is brought into the world, and of the cause of this labour and travell.

When the naturall prefixed and prescribed time of child-birth is come, the childe being then growne greater, requires a greater quantity of food: which when he cannot receive in sufficient measure by his navell, with great labour and striving hee endeavoureth to get forth: therefore then hee is moved with a stronger violence, and doth breake the membranes wherein he is contained. Then the wombe, because it is not able to endure such violent motions, nor to sustaine or hold up the childe any longer, by reason that the conceptracles of the membranes are broken asunder, is relaxed. And then the childe pursuing the aire which hee feeleth to enter in at the mouth of the wombe, which then is very wide and gaping, is carried with his head downewards, and so cometh into the world, with great pain both unto it selfe, and also unto his mother, by reason of the tenderneſs of his body, & also by reason of the extension of the nervous necke of his mothers wombe, and separation of the bone called *Os Ilium* from the bone called *Os sacrum*. For unlesse those bones were drawne in sunder, how could not onely twinnes that cleave fast together, but also one childe alone, come forth at so narrow a passage as the necke of the wombe is? Not onely reason, but also experience confirmeth it; for I have opened the bodies of women presently after they

Why the infant is borne sometimes with his head forwards.

In the time of childe birth the bones of *Ilium* and *Os sacrum* are drawne & extended one from another.

have

An Italian fa-
ble.

have died of travell in childe-birth, in whom I have found the bones of *Ilium* to bee drawne the breadth of ones finger from *Os sacrum*: and moreover, in many unto whom I have been called being in great extremity of difficult and hard travell, I have not onely heard, but also felt the bones to crackle and make a noise, when I laid my hand upon the coccyx or rumpe, by the violence of the distention. Also honest matrons have declared unto me that they themselves, a few daies before the birth, have felt and heard the noise of those bones separating themselves one from another with great paine. Also a long time after the birth, many doe feele great paine and ache about the region of the coccyx and *Os sacrum*, so that when nature is not able to repaire the dissolved continuity of the bones of *Ilium*, they are constrained to halt all the dayes of their life after. But the bones of the share called *Ossa pubis*, I have never seene to be separated, as many do also affirme. It is reported that in *Italy* they break the coccyx or rumpe in all maidens, that when they come to bee married they may beare children with the lesser travaile in childe-birth; but this is a forged tale, for that bone being broken, is naturally and of its owne accord repaired, and joyned together again with a *Callus*, whereby the birth of the childe will be more difficult and hard.

CHAP. XIV.

Of the situation of the infant in the wombe.

The situation of
the infant in
the wombe is
divers.

REASON cannot shew the certain situation of the infant in the wombe, for I have found it altogether uncertaine, variable and divers both in living and dead women: in the dead by opening their bodies presently after they were dead, and in the living by helping them by the industry of my hand, when they have beene in danger of perishing by travell of child-birth: for by putting my hand into the womb, I have felt the infant comming forth, sometimes with his feet forwards, sometimes with his hands, and sometimes with his hands and feet turned backwards, and sometimes forwards, as the figure following plainly describeth.



I have often found them comming forth with their knees forwards, and sometimes with one of the feet, and sometimes with their belly forwards, their hands and feet being lifted upwards, as the former figure sheweth at large.

Sometimes

Sometimes I have found the infant comming with his feet downwards striding awide, and sometimes headlong, stretching one of his armes downward out at length, and that was an Hermaphrodite, as the figure following plainly declareth.

One time I observed in the birth of twinnes, that the one came with his head forwards, and the other with his feet, according as here I have thought good to describe them.



In the bodies of women that died in travaile of childe I have sometimes found children no bigger than if they had beene but foure moneths in the wombe, situated in a round compasse like a hoope, with their head bowed downe to the knees, with both their hands under the knees, and their heeles close to their buttockes. And moreover, I protest before God that I found a childe being yet alive in the body of his mother (whom I opened so soone as shee was dead) lying all along stretched out, with his face upwards, and the palmes of his hands joyned together, as if he were at prayer.

CHAP. XV.

Which is the legitimate and naturall, and which the illegitimate or unnatural time of childe birth.

O all living creatures, except man, the time of conception and bringing forth their young is certaine and definite; but the issue of man commeth into the world, sometimes in the seventh, sometimes in the eighth, and sometimes, which is most frequent, in the ninth moneth, sometimes in the tenth moneth, yea sometimes in the beginning of the eleventh moneth. *Massurius* reports that *Lucius Papyrius* the Pretor, the second heire commencing a suit, gave the possession of the goods away from him, seeing the mother of the childe affirmed that she went thirteen moneths therewith, being there is no certaine definite time of child-birth. The child that is borne in the sixt moneth cannot be long lived, because that at that time all his body or members are not perfectly finished or absolutely formed. In the seventh moneth it is proved by reason and experience that the infant may be long lived. But in the eight moneth it is seldome or never long lived: the reason thereof is, as the Astronomers suppose, because that at that time Saturne ruleth, whose coldnesse and drynesse is contrary to the originall of life: but yet the phisicall reason is more true; for the physitians say that the childe in the wombe doth often times in the seaventh moneth strive to bee set at liberty from the inclosure of the wombe, and therefore it contendeth and laboureth greatlie, and so with labour-

Mankinde hath no certain time of bringing forth young.

Why the child is scarce alive in the eight moneth.

Gggg

ring

Lib. 4. de hist.
anim. cap. 7.

ring and striving it becommeth weak, that all the time of the eight moneth it cannot recover his strength again, whereby it may renew his accustomed use of striving, and that some by such labouring and striving, hurt themselves, and so dye. Yet some strong and lusty women are thought to bring forth their children, being lively and strong, on the eight moneth, as *Aristotle* testifieth of the *Aegyptians*, the Poets of the inhabitants of the Isle of *Naxos*, and many of the Spaniards. Furthermore, I cannot sufficiently marvaile, that the wombe, which all the time of childe-bearing is so closed together, that one can scarce put a probe into it, unlesse it be happely by reason of superfoetation, or when it is open for a short time to purge it selfe, that presently before the time of childe-birth, it should gape and waxe so wide, that the infant may passe through it, and presently after it to close againe as if it had never been opened. But because that the travell of the first time of childe-birth, is wont to be very difficult and grievous, I thinke it not unmeet that all women, a little before the time of their first travell, anoint and relaxe their privie parts with the unguent here described. R. *ſper. ceti*, ʒ ii. *ol. amygd. dul.* ʒ iv. *cera alb.* & *medul. cervin.* ʒ iii. *axung. an.* & *gallin. an.* ʒ i. *tereb. venet.* ʒ ii. make thereof an ointment to anoint the thighes, ſhare, privie parts and genitalls. Furthermore, it ſhall not bee unprofitable, to make a truſſe or girdle of moſt thinne and gentle dog-skinne, which being alſo anointed with the ſame unguent, may ſerve very neceſſarily for the better carrying of the infant in the wombe. Alſo bathes that are made of the decoction of mollifying herbs, are alſo very profitable to relaxe the privie parts a little before the time of the birth.

The naturall &
eaſie child birth

That is ſuppoſed to bee a naturall and eaſie birth, when the infant commeth forth with his head forwards, preſently following the flux of the water; and that is more difficult, when the infant commeth with his feet forwards: all the other wayes are moſt difficult. Therefore Mid-wives are to be admoniſhed that as often as they ſhall perceive the infant to be comming forth none of thoſe waies, but either with his belly or his backe forwards, as it were double, or elſe with his hands and feet together, or with his head forwards, and one of his hands ſtretched out, that they ſhould turne it, and draw it out by the feet; for the doing whereof, if they be not ſufficient, let them crave the aſſiſtance and helpe of ſome expert Chirurgicalian.

CHAP. XVI.

Signes of the birth at hand.



Here will bee great paine under the navell, and at the groines, and ſpreading therehence towards the *Vertebra* of the loines, and then eſpecially when they are drawne backe from the *Os ſacrum*, the bones *Illa* and the *Coccix* are thruſt outward, the genitalls ſwell with paine, and a certaine feaver-like ſhaking invades the body, the face waxeth red by reaſon of the endeavour of nature, armed unto the expulſion of the infant. And when theſe ſignes appeare let all things bee prepared ready to the childe-birth. Therefore firſt of all let the woman that is in travell be placed in her bed conveniently, neither with her face upwards, nor ſitting, but with her backe upwards and ſomewhat high, that ſhe may breath at more liberty, and have the more power or ſtrength to labour. Therefore ſhe ought to have her legs wide one from another, and crooked, or her heeles ſomewhat bowed up towards her buttocks, ſo that ſhe may lean on a ſtaffe that muſt be placed overthwart the bed. There are ſome that do travell in a ſtoole or chair made for the purpoſe: others ſtanding upright on their feet, and leaning on the poaſt or pillar of the bed. But you muſt take diligent heed that you doe not exhort or perſwade the woman in travell to ſtrive or labour to expell the birth before the forenamed ſignes thereof doe manifeſtly ſhew that it is at hand. For by ſuch labour or pains ſhe might be wearied or ſo weakened, that when ſhee ſhould ſtrive or labour, ſhe ſhall have no power or ſtrength ſo to doe. If all theſe things doe fall out well in the childe-birth, the buſineſſe is to be committed to nature and to the Mid-wife. And the woman with child muſt onely bee admoniſhed that when ſhee feeleth very ſtrong paine, that ſhee preſently

How the woman that travelleth in child-birth muſt bee placed in her bed.

presently therewith strive with most strong expression, shutting her mouth and nose if shee please, and at the same time let the mydwife with her hands force the infant from above downewards. But if the birth bee more difficult and painefull, by reason that the waters wherein the infant lay are flowd out long before, and the wombe be dry, this ointment following is to be prepared. *Rx. butyri recentis sine sale in aqua artemesia loti ℥iij. mucaginis ficuum, semin. lini & althea cum aqua sabina extracta, an. ℥ss. olei liliorum ℥i.* Make thereof an ointment, wherewith let the mydwife often annoynt the secret parts. Also this powder following may bee prepared. *Rx. Cinamom. cort. cassia fistul. dictamni an. ℥i ℥ssacch. albi ad pondus omnium :* make thereof a most subtle and fine powder. Let the woman that is in extremity by reason of difficult and painefull travell in child-birth, take halfe an ounce thereof at a time, with the decoction of linseede, or in white wine, for it will cause more speedy and easie deliverance of the childe.

Anunction to supply the defect of the waters that are flowd out too long before the birth.

A powder to cause speedy deliverance in child-birth.

Moreover, let the mydwife annoynt her hands with this ointment following as often as shee putteth them into the necke of the wombe, and therewith also annoynt the parts about it. *Rx. olei ex seminibus lini ℥i. ℥ss. olei de castoreo ℥ss. gallie moschatae ℥iij. ladanii ℥i.* make thereof a liniment. Moreover, you may provoke sneezing, by putting a little pepper or white hellebore in powder into the nostrils. Linseed beaten, and given in a potion, with the water of Mugwort and Savine, is supposed to cause speedy deliverance. Also the medicine following is commended for the same purpose. *Rx. corticis cassia fistul. conquassatae ℥iij. cicer. rub. m. ℥ss. bulliant cum vino albo & aqua sufficienti, sub finem addendo sabina, ℥iij. in colatura pro dosi adde cinamomi ℥ss. croci gr. vi.* make thereof a potion, which being taken, let sneezing bee provoked, as it is above-said, and let her shut or close her mouth and nostrils.

Aph. 35. & 45. sect. 5.

A potion causing speedy deliverance.

Many times it happeneth that the infant commeth into the world out of the wombe, having his head covered or wrapped about with portion of the secundine or tunicle wherein it is enclosed, especially when by the much, strong, and happy striving of the mother, he commeth forth together with the water wherein it lyeth in the wombe, and then the mydwives prophesie or foretell that the childe shall be happy, because hee is borne as it were with a hood on his head. But I suppose that it doth betoken health of body both to the infant and also to his mother; for it is a token of easie deliverance. For when the birth is difficult and painfull, the child never bringeth that membrane out with him, but it remaineth behinde in the passage of the genitals or secret parts, because they are narrow. For even so the Snake or Adder when shee would cast her skinne thereby to renew her age, creepeth through some narrow or straight passage. Presently after the birth, the woman so delivered must take two or three spoonefuls of the oyle of sweet almonds extracted without fire, and tempered with sugar. Some will rather use the yolks of egges with sugar, some the wine called Ipocras, others cullies or gelly: but alwaies divers things are to bee used, according as the patient or the woman in childbed shall be grieved; and as the Physician shall give counsell, both to cease and assuage the furious torments and paine of the throwes, to recover her strength and nourish her.

What a woman in travell must take presently after her deliverance.

Throwes come presently after the birth of the child, because that then the veines (nature being wholly converted to expulsion) cast out the reliques of the menstruall matter that hath beene suppressed for the space of nine moneths, into the wombe with great violence, which because they are grosse, slimie and dreggish, cannot come forth without great paine both to the veines from whence they come, and also unto the wombe whereinto they goe: also then by the conversion of that portion thereof that remaineth into winde, and by the indiscreete admission of the aire in the time of the child-birth, the wombe and all the secret parts will swell, unlesse it be prevented with some digesting, repelling or mollifying oile, or by artificiall rowling of the parts about the belly.

The cause of the after-throwes.

CHAP. XVII.

What is to bee done presently after the child is borne.

Why the secundine or after-birth must bee taken away presently after the birth of the childe.

The binding of the childs navell-string after the birth.

Presently after the child is borne, the mydwife must draw away the secundine or after birth, as gently as shee can : but if she cannot, let her put her hands into the wombe, and so draw it out, separating it from the other parts ; for otherwise if it should continue longer, it would bee more difficult to bee gotten out, because that presently after the birth, the orifice of the wombe is drawn together and closed, and then all the secundine must be taken from the child. Therefore the navell string must bee tyed with a double thread an inch from the belly. Let not the knot be too hard, lest that part of the navell string which is without the knor should fall away sooner than it ought, neither too slacke or loose, lest that an exceeding and mortall fluxe of bloud should follow after it is cut off, and lest that through it (that is to say, the navell string) the cold aire should enter into the childs body. When the knot is so made, the navell-string must be cut in sunder the breadth of two fingers beneath it with a sharpe knife. Upon the section you must apply a double linnen cloth dipped in oyle of Roses, or of sweet almonds, to mitigate the paine ; for so within a few dayes after, that which is beneath the knot will fall away, being destitute of life and nourishment, by reason that the veine and artery are tyed so close, that no life nor nourishment can come unto it : commonly all mydwives doe let it lye unto the bare belly of the infant, whereof commeth grievous paine and griping, by reason of the coldnesse thereof, which dyeth by little and little, as destitute of vitall heat. But it were farre better to roule it in soft cotton or lint, untill it be mortified, and so fall away.

Those mydwives doe unadvisedly, who so soone as the infant is borne, doe presently tye the navell string and cut it off, not looking first for the voyding of the secundine. When all these things are done, the infant must bee wiped, cleansed and rubbed from all filth and excrement with oyle of Roses or Myrtles. For thereby the pores of the skinne will bee better shut, and the habite of the body the more strengthened.

The defaults that are commonly in children newly borne.

The defaults of conformation must be speedily amended.

There bee some that wash infants at that time in warme water and red wine, and afterwards annoynt them with the forenamed oyles. Others wash them not with wine alone, but boyle therein red Roses and the leaves of Myrtles, adding thereto a little salt ; and then using this lotion for the space of five or sixe dayes, they not onely wash away the filth, but also resolve and digest, if there bee any hard or contused place in the infants tender body, by reason of the hard travell and labour in child-birth. Their toes and fingers must bee handled, drawne asunder and bowed, and the joynts of the armes and legges must bee extended and bowed for many dayes and often, that thereby that portion of the excrementall humour that remaineth in the joynts, by motion may bee heated and resolved. If there bee any default in the members, either in conformation, construction or society with those that are adjoyning to them, it must bee corrected or amended with speed. Moreover, you must looke whether any of the naturall passages bee stopped, or covered with a membrane, as it often happeneth. For if any such cover or stop the orifices of the eares, nostrils, mouth, yard or wombe, it must bee cut in sunder by the Chyrurgion, and the passage must bee kept open by putting in of tents, pessaries or do-sels, lest otherwise they should joyne together againe after they are cut. If he have one finger more than hee should naturally, if his fingers doe cleave close together, like unto the secte of a Goose or Ducke, if the ligamentall membrane that is under the tongue bee more short and stiffer than it ought, that the infant cannot sucke, nor in time to come, speake, by reason thereof ; and if there be any other thing contrary to nature, it must bee all amended by the industry of some expert Chyrurgion.

Many times in children newly borne, there sticketh on the inner side of their mouth and on their tongue, a certain chalkie substance, both in colour & consistence ;
this

this affect proceeding from the distemperature of the mouth, the French-men call it the white Cancer. It will not permit the infant to suck, & will shortly breed & degenerate into ulcers that will creepe into the jawes, and even unto the throate, and unlessse it bee cleansed speedily, will bee their death. For remedy whereof, it must bee cleansed by deterfives, as with a linnen cloth bound to a little stick, and dipped in a medicine of an indifferent consistence made with oyle of sweete almonds, hony and sugar. For by rubbing this gently on it, the filth may bee mollified, and so cleansed or washed away.

Remedies for
the cancer in a
childs mouth.

Moreover it will bee very meete and convenient to give the infant one spoonefull of oyle of almonds, to make his belly loose and slippery, to assuage the roughnesse of the weason and gullet, and to dissolve the tough phlegme, which causeth a cough, and sometimes difficulty of breathing. If the eye lids cleave together, or if they bee joyned together, or agglutinated to the coats *cornea* or *adnata*; if the watery tumour called *hydrocephalos* affect the head, then must they bee cured by the proper remedies formerly prescribed, against each disease.

Many from their birth have spots or markes, which the common people of France call *Signes*, that is, markes or signes. Some of these are plaine and equall with the skinne, others are raised up into little tumours, and like unto warts, some have haire upon them, many times they are smoothe, blacke or pale, yet for the most part red. When they arise in the face, they spread abroad thereon many times with great deformity. Many thinke the cause thereof to bee a certaine portion of the menstruall matter cleaving to the sides of the wombe, comming of a fresh flux, if happely the man doe yet use copulation with the woman, or else distilling out of the veines into the wombe, mixed and concorporated with the seedes at that time when they are congealed, infecting this or that part of the issue, being drawne out of the seminall body, with their owne colour. Women referre the cause thereof unto their longing when they are with childe, which may imprint the image of the thing they long for or desire, in the child or issue that is not as yet formed (as the force or power of imagination in humane bodies is very great:) but when the child is formed, no imagination is able to leave the impression of any thing in it; no more than it could cause hornes to grow on the head of King *Chypus* as hee slept presently after hee was returned from attentively beholding Bulls fighting together. Some of those spots bee curable, others not; as those that are great, and those that are on the lips, nostrils, and eye-lids. But those that are like unto warts, because they are partakers of a certaine maligne quality and melancholicke matter, which may bee irritated by endeavouring to cure them, are not to bee medled with at all, for being troubled and angered, they soone turne into a Cancer (which they call *Noli me tangere*). Those that are curable are small, and in such parts as they may bee dealt withall without danger. Therefore they must bee pierced through by the roots with a needle and a thread, and so being lifted up by the ends of the thread, they must bee cut away; and the wound that remaineth must be cured according to the generall method of wounds.

An old fable of
King *Chypus*.

Which uncure-
ble.

Which and how
they are curable.

There are some that suppose the red spots that are raised up into little knobbes and bunches, may bee washed away and consumed by rubbing and annoynting them often with menstruall bloud, or the bloud of the secundine or after-birth. Those that are hairie and somewhat raised up like unto a Wart or Mousse, must bee pierced through the roots in three or foure places, and straightly bound, so that at length being destitute of life and nutriment, they may fall away: after they are fallen away, the ulcer that remaineth must bee cured as other ulcers are. If there bee any superfluous flesh remaining, it must bee taken away by applying *Egyptiacum*, or the powder of mercury, and such like: but if it be doubted that it cometh from the root of the tumour that may happely remaine, it must bee burned away by the roor with oyle of vitrioll or *aqua fortis*.

There is also another kinde or sort of spots, of a livide or violet colour, comming especially in the face about the lips, with a soft, slacke, lax, thinne, and unpainfull tumour, and the veines as if they were varicous round about it. This kinde of tumour groweth greater when it ariseth on children that are wayward and crying,

and in men of riper yeares that are cholericke and angry, and then it will bee of a diuerſe colour, like unto a lappet or flap of fleſh that hangeth over the Turkie cocks bill. When they have done crying, or ceaſed their anger, the tumour will returne to his owne naturall colour againe. But you muſt not attempt to cure it in people that are of theſe conditions.

CHAP. XVIII.

How to pull away the ſecundine or after-birth.

Why it is called the ſecundine.



Suppoſe that they are called ſecundines, becauſe they doe grieve the woman that is with child the ſecond time, as it were a ſecond birth: for if there bee ſeverall children in the wombe at once, and of different ſexes, they then have every one their ſeverall ſecundines, which thing is very neceſſary to bee knowne by all mydwives. For they doe many times remaine behinde in the wombe when the child is borne, either by reaſon of the weakenſſe of the woman in travell, which by contending and labouring for the birth of her childe, hath ſpent all her ſtrength: or elle by a tumour riſing ſuddenly in the necke of the wombe, by reaſon of the long and difficult birth, and the cold aire unadviſedly permitted to ſtrike into the oriſice of the wombe. For ſo the liberties of the wayes or paſſages are ſtopped and made more narrow, ſo that nothing can come forth: or elle becauſe they are doubled and foulded in the wombe, and the waters gone out from them with the infant, ſo that they remaine as it were in a dry place: or elle becauſe they yet ſticke in the wombe by the knots of the veines and arteries, which commonly happeneth in thoſe that are delivered before their time. For even as apples which are not ripe, cannot bee pulled from the tree but by violence; but when they are ripe, they will fall off of their owne accord: ſo the ſecundine before the naturall time of the birth can hardly bee pulled away but by violence; but at the prefixed naturall time of the birth, it may eaſily be drawne away.

The cauſes of the ſtaying of the ſecundines

Accidents that follow the ſtaying of the ſecundines.

The manner of drawing out the ſecundines that remaine after the birth.

The cauſe of the falling down of the wombe.

The accidents that come of the violent pulling of the wombe, together with the ſecundine.

Many and grievous accidents follow the ſtaying of the ſecundine; as ſuffocation of the wombe, often ſwoning, by reaſon that groſſe vapours ariſe from the putrefaction unto the mydriffe, heart and braine: therefore they muſt bee pulled away with ſpeede from the wombe, gently handling the navell, if it may bee ſo poſſibly done. But if it cannot bee done ſo, the woman muſt bee placed as ſhee was wont when that the childe will not come forth naturally, but muſt bee drawne forth by art. Therefore the mydwife having her hand annoynted with oyle, muſt put it gently into the wombe, and finding out the navell ſtring, muſt follow it untill it come unto the ſecundine, and if it doe as yet cleave to the wombe by the corylidons, ſhee muſt ſhake and move it gently up and downe, that ſo when it is ſhaked and looſed, ſhee may draw it out gently; but if it ſhould bee drawne with violence, it were to be feared leſt that the wombe ſhould alſo follow: for by violent attraction ſome of the veſſels, and alſo ſome of the nervous ligaments, whereby the wombe is faſtened on each ſide, may bee rent, whereof followeth corruption of bloud ſhedde out of the veſſels, and thence commeth inflammation, an abſceſſe or a mortall gangrene. Neither is there leſſe danger of a convulſion by reaſon of the breaking of the nervous bodies, neither is there any leſſe danger of the falling downe of the wombe. If that there bee any knots or clods of bloud remaining together with the ſecundine, the mydwife muſt draw them out one by one, ſo that nor any may bee left behinde.

Some women have voyded their ſecundine, when it could not bee drawne forth by any meanes, long after the birth of the child, by the necke of their wombe, piece-meale, rotten and corrupted, with many grievous and painefull accidents. Alſo it ſhall bee very requiſite to provoke the endeavour of the expulſive faculty by ſternutatories, aromaticke fomentations of the necke of the wombe, by mollifying injections: and contrariwiſe, by applying ſuch things to the noſtrils as yeeld a ranke ſavour

favour or smell, with a potion made of mugwurt and bay berries taken in hony and wine mixed together, or with halfe a dramme of the powder of lavine, or with the haire of a womans head, burnt and beaten to powder, and given to drink; and to conclude, with all things that provoke the tearmes or courses.

CHAP. XIX.

What things must bee given to the infant by the mouth, before hee bee permitted to suck the Teat or Dugge.



IT will bee very profitable to rub all the inner side of the childe's mouth and pallat gently with treacle and hony, or the oyle of sweete almonds extracted without fire, and if you can, to cause it to swallow some of those things: for thereby much flegmatick moysture will bee drawne from the mouth, and also will bee moved or provoked to bee vomited up from the stomacke; for if these excrementall humours should bee mixed with the milke

To draw fleame from the child's mouth.

that is sucked, they would corrupt it, and then the vapours that arise from the corrupted milke unto the brain would inferre most pernicious accidents. And you may know that there are many excrementall things in the stomacke and guts of children by this, because that so soon as they come into the world, and often before they suck milke or take any other thing, they voyde downewards many excrements diversly coloured, as yellow, greene, and blacke. Therefore many, that they may speedily evacuate the matter that causeth the fretting of the guts, doe not onely minister those things fore-named, but also some laxative syrupe, as that that is made of damaske Roses. But before the infant bee put to suck the mother, it is fitting to presse some milke out of her breast into its mouth, that so the fibres of the stomack may by little and little accustome themselves to draw in the milke.

Milke soon corrupted in a flegmatick stomack.

CHAP. XX.

That mothers ought to nurse or give sucke unto their owne children.



HAT all mothers would nurse their owne children were greatly to bee wished: for the mothers milke is farre more familiar nourishment for the infant than that of any other nurse: for it is nothing else but the same bloud made white in the dugges, wherewith before it was nourished in the wombe. For the mother ought not to give the child suck for the space of a few dayes after the birth, but first to expect the perfect expurgation and avoyding of the excrementall humours. And in the meane time let her cause her breasts to bee sucked of another, or many other children, or of some wholsome or sober maide, whereby the milke may bee drawne by little and little unto her breasts, and also by little and little purified.

The mothers milke is most familiar for the child.

For a certaine space after the birth, the milke will bee troubled, and the humours of the body moved: so that by long staying in the dugges, it will seeme to degenerate from its naturall goodnesse, as the grossenesse of it is somewhat congealed, the manifest heate in touching, and the yellow colour thereof testifieth evidently. Therefore it is necessary that others should come in place thereof when it is sucked out, wherewith the infant may be nourished. But if the mother or the nurse chance to take any disease, as a Feaver, Scouring, or any such like, let her give the child to another, to give it sucke, lest that the child chance to take the nurses diseases. And moreover, mothers ought to nurse their owne children, because for the most part they are farre more vigilant and carefull in bringing up and attending their children, than hired and mercenary nurses, which doe not so much regard the infant,

The disease of the nurse is participated unto the child.

as the gaine they shall have by the keeping of it, for the most part. Those that doe not nurse their owne children, cannot rightly bee termed mothers : for they doe not absolutely performe the duty of a mother unto their childe, as *Marcus Aurelius* the Roman Emperour was wont to say. For this is a certaine unnaturall, imperfect and halfe kinde of a mothers duty, to beare a childe, and presently to abandon or put it away as if it were forsaken : to nourish and feede a thing in their wombe (which they neither know nor see) with their owne blood, and then not to nourish it when they see it in the world alive, a creature or reasonable soule, now requiring the help and sustentation of the mother.

CHAP. XXI.

Of the choice of Nurses.



Any husbands take such pittie on their tender wives, that they provide nurses for their children, that unto the paines that they have sustained in bearing them, they may not also adde the trouble of nursing them : wherefore such a nurse must bee chosen which hath had two or three children. For the dugges which have beene already sucked and accustomed to bee filled, have the veines and arteries more large and capable to receive the more milke. In the choyce of a nurse there are ten things to bee considered very diligently : as, her age, the habit of her body, her behaviour, the condition of her milke, the forme, not onely of her dugges or breasts, but also of her teats or nipples, the time from her child-birth, the sexe of her last infant or childe, that shee bee not with childe, that shee bee sound and in perfect health. As concerning her age, shee ought not to bee under twenty five yeares, nor above thirty five : the time that is betweene is the time of strength, more temperate, and more wholesome and healthy, and lesse abounding with excrementall humours. And because her body doth not then grow or encrease, shee must of necessity have the more abundance of blood. After thirty five yeares in many the menstruall fluxes do cease, and therefore it is to bee supposed that they have the lesse nutriment for children.

The best age of a nurse.

The best habit of body in a nurse.

Lib. de inf. nutr.

The nurse must also be of a good habit, or square or wel set body, her breast broad, her colour lively, not fat, nor leane, but well made, her flesh not soft and tender, but thick, and hard or strong, whereby she may be the more able to endure watching & taking of pains about the child ; she must not have a red or freckled face, but browne or somewhat shadowed or mixed with rednesse : for truly such women are more hot than those that are red in the face, by reason whereof they must needs concoct and turne their meate the better into blood. For according to the judgement of *Sextus Cheromensis*, as blackish or browne ground is more fertill than the white ; even so a browne woman hath more store of milke. You must looke well on her head, lest shee should have the scurfe or running sores ; see that her teeth bee not foule or rotten, nor her breath stinking, nor no ulcer nor sore about her body, and that she be not borne of gouty or leprous Parents.

Of what behaviour the nurse must bee.

Shee ought to bee quicke and diligent in keeping the childe neate and cleane, chaste, sober, merry, alwaies laughing and smiling on her infant, often singing unto it, and speaking distinctly and plainly, for shee is the onely mistrisse to teach the childe to speake. Let her bee well mannered, because the manners of the nurse are participated unto the infant together with the milke. For the welpes of dogges, if they doe sucke Wolves or Lionesses, will become more fierce and cruell than otherwise they would. Contrariwise, the Lions whelps will leave their savagenesse and fiercenesse, if that they bee brought up and nourished with the milke of any Bitch, or other tame beast. If a Goat give a Lambe sucke, the same Lambes wooll will be more hard than others : contrariwise, if a Sheep give a Kyd suck, the same Kyds haire will be more soft than another Kyds haire. Shee ought to be sober, and the rather for this cause, because many nurses being overloaden with wine & banqueting, often set their children unto their breasts to suck, and then fall asleep, and so suddenly strangle or choak them.

Shee

Shee must abstaine from copulation : for copulation troubleth and moveth the humours and the blood, and therefore the milke it selfe ; and it diminisheth the quantity of milke, because it provoketh the menstruall fluxe, and causeth the milke to have a certain strong and virous quality, such as we may perceive to breathe from them that are incensed with the fervent lust and desire of venery. And moreover, because that thereby they may happen to bee with childe, whereof ensueth discomfort both to her owne childe that is within her body, and also to the nurse child: to the nurse childe, because that the milke that it sucketh will be worse and more depraved than otherwise it would bee, by reason that the more laudable blood after the conception remaineth about the wombe, for the nutriment and increasing of the infant in the wombe ; and the more impure blood goeth into the dugges, which breedeth impure or uncleane milke : but to the conceived childe, because it will cause it to have scarcity of foode ; for, so much as the sucking childe sucketh, so much the child conceived in the wombe, wanteth.

Why the nurse must abstaine from copulation.

Also shee ought to have a broad breast, and her dugges indifferently bigge, not slacke or hanging ; but of a middle consistence, betweene soft and hard ; for such dugges will concoct the blood into milke the better, because that in firme flesh the heate is more strong and compact. You may by touching try whether the flesh bee solid and firme, as also by the dispersing of the veines, easily to bee seene by reason of their swelling and blewnesse, through the dugges, as it were into many streams or little rivelets ; for in flesh that is loose and slacke, they lie hidden. Those dugges that are of a competent bignesse, receive or containe no more milke than is sufficient to nourish the infant. In those dugges that are great and hard, the milke is as it were suffocated, stopped or bound in, so that the childe in sucking can scarce draw it out : and moreover, if the dugges bee hard, the childe putting his mouth to the breast, may strike his nose against it, and so hurt it, whereby hee may either refuse to sucke, or if hee doth proceede to sucke, by continuall sucking, and placing of his nose on the hard breast, it may become flat, and the nostrils turned upwards, to his great deformity, when hee shall come to age. If the teates or nipples of the dugges doe stand somewhat low or depressed inwards on the toppes of the dugges, the childe can hardly take them betweene its lippes, therefore his sucking will bee very laborious. If the nipples or teats bee very bigge, they will so fill all his mouth, that he cannot well use his tongue in sucking or in swallowing the milke.

What dugs a nurse ought to have.

Wee may judge of or know the nature and condition of the milke, by the quantity, quality, colour, savour and taste : when the quantity of the milke is so little, that it will not suffice to nourish the infant, it cannot bee good and laudable ; for it argueth some distemperature either of the whole body, or at least of the dugges, especially a hot and dry distemperature. But when it super-aboundeth, and is more than the infant can spend, it exhausteth the juice of the nurses body ; and when it cannot all bee drawne out by the infant, it cluttereth, and congealeth or corrupteth in the dugges. Yet I would rather wish it to abound, than to bee defective, for the super-abounding quantity may bee pressed out before the child be set to the breast.

What is to bee observed in the milke.

That milke that is of a meane consistence betweene thicke and thinne, is esteemed to bee the best. For it betokeneth the strength and vigour of the faculty that ingendereth it in the breasts. Therefore if one droppe of the milke bee layd on the naile of ones thumb, being first made very cleane and faire, if the thumb bee not moved, and it runne off the naile, it signifieth that it is watery milke : but if it sticke to the naile, although the end of the thumb bee bowed downewards, it sheweth that it is too grosse and thicke : but if it remaine on the naile so long as you hold it upright, and fall from it when you hold it a little aside or downewards by little and little, it sheweth it is very good milke. And that which is exquisitely white, is best of all. For the milke is no other thing than blood made white.

The laudable consistence of milke.

Therefore, if it bee of any other colour, it argueth a default in the blood : so that if it bee browne, it betokeneth melancholy blood ; if it be yellow, it signifieth cholericke blood ; if it bee wanne and pale, it betokeneth phlegmaticke blood ; if it bee somewhat red, it argueth the weakenesse of the faculty that engendreth the milke.

Why the milke ought to be very white.

It

Why a woman
that hath red
hair, or freckles
on her face can
not be a good
nurse.

It ought to be sweet, fragrant, and pleasant in smell; for if it strike into the nostrills with a certaine sharpenesse, as for the most part the milke of women that have red haire and little freckles on their faces doth, it prognosticates a hot and cholerick nature: if with a certaine sowerneesse, it portendeth a cold and melancholy nature. In taste it ought to be sweet, and as it were sugred, for the bitter, saltish, sharp, and stipticke, is naught. And here I cannot but admire the providence of nature, which hath caused the blood wherewith the childe should be nourished to be turned into milke: which unlesse it were so, who is he that would not turne his face from, and abhorre so grievous and terrible a spectacle of the childes mouth so imbued and besmeared with blood? What mother or nurse would not be astonished or amazed at every moment with the feare of the blood so often shedde out, or sucked by the infant for his nourishment? Moreover, we should want two helps of sustentation, that is to say, butter and cheefe.

Neither ought the childe to bee permitted to sucke within five or sixe dayes after it is borne, both for the reason before alledged, and also because he hath need of so much time to rest quiet, and ease himselfe after the paines hee hath sustained in his birth: in the meane season the mother must have her breasts drawne by some maide that drinketh no wine, or else she may sucke or draw them her selfe with an artificiall instrument which I will describe hereafter.

Why that nurse
that hath borne
a man childe is
to be preferred
before another.

That nurse that hath borne a man childe is to be preferred before another, because her milke is the better concocted, the heate of the male childe doubling the mothers heate. And moreover, the women that are great with childe of a male childe, are better coloured, and in better strength, and better able to doe any thing all the time of their greatnesse, which proveth the same: and moreover the blood is more laudable, and the milke better. Furthermore, it behoveth the Nurse to bee brought on bed, or to travell at her just and prefixed or naturall time: for when the childe is born before his time of some inward cause, it argueth that there is some default lurking and hidden in the body and humours thereof.

Why she can
not be a good
nurse whose
childe was born
before the time.

CHAP. XXII.

What diet the Nurse ought to use, and in what situation shee ought to place the infant in the cradle.



Both in eating, drinking, sleeping, watching, exercising and resting, the nurses diet must be divers, according as the nature of the childe both in habit and temperature shall be: as for example, if the childe bee altogether of a more hot blood, the nurse both in feeding and ordering her selfe ought to follow a cooling diet. In generall, let her eat meates of good juice, moderate in quantity and quality, let her live in a pure and cleere aire, let her abstaine from all spices, and all salted and spiced meats, and all sharpe things, wine, especially that which is not allayed or mixed with water, and carnall copulation with a man, let her avoyd all perturbations of the minde, but anger especially, let her use moderate exercise, unlesse it be the exercise of her armes and upper parts, rather than the legges and lower parts, whereby the greater attraction of the blood, that must be turned into milke, may bee made towards the dugges. Let her place her childe so in the cradle that his head may be higher than all the body, that so the excrementall humours may bee the better sent from the braine unto the passages that are beneath it. Let her swathe it so as the neck and all the back-bone may be straight and equall. As long as the childe sucketh, and is not fed with stronger meat, it is better to lay him alway on his backe, than any other way, for the backe is, as it were the Keele in a ship, the ground-worke and foundation of all the whole body, whereon the infant may safely and easily rest. But if hee lye on the side, it were danger lest that the bones of the ribs being soft and tender, not strong enough, and united with slacke bands, should bow under the waight of the rest, and so waxe crooked, whereby the infant might become crooke-backed. But when he beginneth to breed teeth

Anger greatly
hurteth the
nurse.

The exercise of
the arms is best
for the nurse.
How the child
should be placed
in the cradle.

teeth, and to bee fed with more strong meat, and also the bones and connexions of them begin to waxe more firme and hard, hee must bee layed one while on this side, another while on that, and now and then also on his backe. And the more hee groweth, the more let him be accustomed to lye on his sides; and as hee lieth in the cradle, let him bee turned unto that place whereat the light commeth in, lest that otherwise he might become poore-blind, for the eye of its owne nature is bright and light-some, and therefore alwaies desireth the light, and abhorreth darkenesse, for all things are most delighted with their like, and shunne their contraries. Therefore unlesse the light come directly into the childe's face, he turneth himselfe every way being very sorrowfull, and striveth to turne his head and eyes that hee may have the light; and that often turning and rowling of his eyes at length groweth into a custome that cannot bee left: and so it commeth to passe that the infant doth either become poore-blind, if hee set his eyes stedfastly on one thing, or else his eyes doe become trembling, alwaies turning and unstable, if hee cast his eyes on many things that are round about him: which is the reason that nurses, being taught by experience, cause over the head of the childe lying in the cradle, an arch or vault of wickers covered with cloath to be made, thereby to restraine, direct, and establish the uncertaine and wandering motions of the childe's eyes.

Why an arch of wickers must be made over the childe's head lying in the cradle.

Why a squint-eyed nurse causeth the childe to be squint-eyed.

If the nurse be squint-eyed, she cannot look upon the childe but side-waies, whereof it commeth to passe that the childe being moist, tender, flexible and prone to any thing with his body, and so likewise with his eye, by a long and daily custome unto his nurses sight, doth soone take the like custome to looke after that sort also, which afterwards he cannot leave or alter. For those evill things that we learn in our youth, do stick firmly by us, but the good qualities are easily changed into worse. In the eyes of those that are squint-eyed, those two muscles which do draw the eyes to the greater or lesser corner, are chiefly or more frequently moved. Therefore either of these being confirmed in their turning aside by long use, as the exercise of their proper office encreaseth the strength, soone overcomes the contrary or withstanding muscles, called the Antagonists, and brings them into their subjection, so that will they nill they bring the eye unto this or that corner as they list. So children become left-handed, when they permit their right hand to languish with idlenesse and sluggishness, and strengthen their left hand with continuall use and motion to do every action therewithall, and so bring by the exercise thereof, more nutriment unto that part. But if men (as some affirme) being of ripe yeers and in their full growth, by daily society and company of those that are lame and halt doe also halt, not minding so to doe, but it commeth against their wills, and when they thinke nothing thereof, why should not the like happen in children, whose soft and tender substance is as flexible and pliant as waxe unto every impression? Moreover, children, as they become lame and crook-backt, so doe they also become squint-eyed by the hereditary default of their parents.

How children become left-handed.

CHAP. XXIII.

How to make pappe for children.



Pappe is a most meet foode or meat for children, because they require moist nourishment, and it must bee answerable in thickenesse to the milke, that so it may not be difficult to be concocted or digested. For pap hath these three conditions, so that it be made with wheaten flower, and that not crude but boiled: let it be put into a new earthen pot or pipkin, and so set into an oven at the time when bread is set there-into to bee baked, and let it remaine there untill the bread bee baked and drawne out; for when it is so baked it is lesse clammy and crude. Those that mixe the meale crude with the milke, are constrained to abide one of these discommodities or other, either to give the meale grosse & clammy unto the child, if that the pap be onely first boiled over the fire in a pipkin or skillet so long as shall bee necessary for

Three laudable conditions of pappe.

How the meale must be prepared to make the pap withall.

Why the meale wherewith the pap must be made, must first be boiled or baked.

*r. de sanit.
tuend.*

A cataplasme
to relaxe the
childs belly.

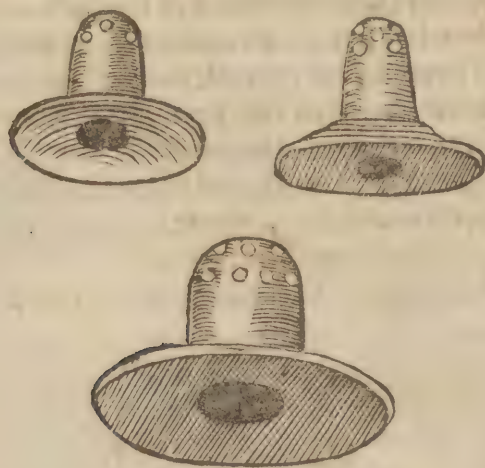
For the fretting
of the guts in
children.

For the ulcers
of the nipples
or teats.

for the milke; hence come obstructions in the mesaraike veines, and in the small veines of the liver, fretting and wormes in the guts, and the stone in the reines. Or else they give the child the milk, despoiled of its butterish and whayish portion, and the terrestriall and cheefelike or curdlake remaining, if the pap be boiled so long as is necessary for the meale: for the milke requireth not so great, neither can it suffer so long boyling as the meale. Those that doe use crude meale, and have no hurt by it, are greatly bound to nature for so great a benefit. But *Galen* willeth children to bee nourished onely with the nurses milke, so long as the nurse hath enough to nourish and feed it. And truely there are many children that are contented with milke only, and will receive no pappe untill they are three moneths old. If the child at any time bee costive, and cannot voide the excrements, let him have a cataplasme made with one dramme of Aloes, of white and blacke Hellebore, of each fiftene graines, being all incorporated in as much of an oxe gall as is sufficient, and extended or spread on cotton like unto a pultis, as broad as the palme of ones hand, and so apply it upon the navell warme: moreover, this cataplasme hath also vertue to kill the wormes in the belly. Many times children have fretting of the guts, that maketh them to cry, which commeth of crudity. This must bee cured by applying unto the belly sweaty or moist woole, macerated in oile of chamomile.

If when the childe teeth begin to grow, he chance to bite the nipple of the nurses breast, there will bee an ulcer very contumacious and hard to be cured, because that the sucking of the childe, and the rubbing of the cloaths doe keep it alwaies raw; it must be cured with fomenting it with allome water, and then presently after the fomentation putting thereupon a cover of leade, made like unto a hat, as they are here described, with many holes in the toppe, whereat both the milke, and also the fannous matter that commeth from the ulcers may goe out, for lead it selfe will cure ulcers.

The figure of leaden Nipples to be put upon the Nipple or Teat of the Nurse when it is ulcerated.



What moderate
crying worketh
in the infant.

What immoderate crying
causeth.

Children may be caused to cease their crying foure manner of waies, that is to say, by giving them the teat, by rocking them in a cradle, by singing unto them, and by changing the cloaths and swathes wherein they are wrapped. They must not bee rocked too violently in the cradle, lest that the milke that is sucked should be corrupted by the too violent motion, by reason whereof they must not be handled violently any other way, and not altogether prohibited or not suffered to cry. For by crying the breast and lungs are dilated and made bigger and wider, the naturall parts the stronger, and the braine, nostrills, the eyes and mouth are purged, by the teares and filth that come from the eyes and nostrills. But they must not bee permitted to cry long or fiercely, for feare of breaking the production of the *Peritonaeum*, and thereby causing the falling downe of the guts into the cod, which rupture is called of the Greekes *Enterocoele*, or of the caule, which the Greekes call *Epiplocele*.

CHAP. XXIII.

Of the weaning of children.

Any are weaned in the eighteenth moneth, some in the twentieth, but all, or the most part, in the second yeare, for then their teeth appeare, by whose presence nature seemeth to require some harder meat than milke or pappe, wherewith children are delighted, and will feed more earnestly thereon. But there is no certaine time of weaning of children.

For the teeth of some will appeare sooner, and some later; for they are prepared of nature for no other purpose than to chaw the meat. If children bee weaned before their teeth appeare, and bee fed with meat that is somewhat hard and solid, according to the judgement of *Avicen*, they are incident to many diseases comming through crudity, because the stomacke is yet but weake, and wanteth that preparation of the meates which is made in the mouth by chawing; which men of ripe yeeres cannot want without offence: when the childe is two yeeres old, and the teeth appeare, if the childe more vehemently desire harder meates, and doth feed on them with pleasure & good successe, he may be safely weaned; for it cannot be supposed that he hath this appetite of hard meats in vain, by the instinct of nature. Yet he may not be weaned without such an appetite, if all other things be correspondent, that is to say, his teeth and age, for those things that are eaten without an appetite, cannot profit. But if the childe be weake, sickly, or feeble, he ought not to be weaned. And when the meet time of weaning cometh, the nurse must now and then use him to the teat, whereby he may leave it by little and little, and then let the teate be anointed or rubbed with bitter things, as with Aloes, water of the infusion of *Colocynthus*, or worme-wood, or with mustard, or soote steeped in water, or such like. Children that are scabby in their heads, and over all their bodies, and which void much flegme at their mouth and nostrills, and many excrements downwards, are like to be strong and sound of body; for so they are purged of excrementall humours: contrariwise, those that are cleane and faire of body, gather the matter of many diseases in their bodies, which in proceesse of time will breake forth and appeare. Certainly by the sodaine falling of such matters into the backe-bone, many become crookebackt.

When children must be weaned

Why children must not be weaned before their teeth appeare.

How children must be weaned

What children are strong and sound of body,

An often cause of sudden crookednesse.

CHAP. XXV.

By what signes it may bee knowne whether the childe in the wombe bee dead or alive.



Neither the Chirurgians hand, nor the mother can perceive the infant to move, if the waters bee flowed out, and securdine come forth, you may certainly affirme that the infant is dead in the wombe, for this is the most infallible signe of all others: for because the child in the wombe doth breathe but by the artery of the navell, and the breath is received by the *Cotyledon* of the arteries of the wombe, it must of necessity come to passe that when the secundine is separated from the infant, no aire or breath can come unto it. Wherefore so often as the secundine is excluded before the childe, you may take it for a certaine token of the death thereof: when the childe is dead, it will be more heavie to the mother than it was before when it was alive, because it is now no more sustained by the spirits and faculties wherewith before it was governed and ruled, for so we see dead men to be heavier than those that are alive, & men that are weak through hunger and famine to be heavier than when they are well refreshed, and also when the mother enclines her body any way, the infant falleth that way also even as it were a stone. The mother is also vexed with sharpe paine from the privities even to the navell, with a perpetuall desire of making water, and going to stoole, because that nature is wholly busied in

A most certaine sign of the child dead in the wombe.

When the child is dead in the wombe hee is more heavie than he was before being alive.

Hhhh

the

That which is
alive will nor
suffer that
which is dead.

Lib. de tumorib.

Why the belly
of a woman will
be more bigge
when the child
is dead within
her, than it was
before, when it
was alive.

The signes of a
woman that is
weake.

the expulsion or avoidance of that which is dead : for that which is alive will expell the dead so farre as it can from it selfe, because the one is altogether different from the other ; but likenesse, if any thing, conjoynes and unites things together : the genitalles are cold in touching, and the mother complaineth that she feeleth a coldnesse in her womb, by reason that the heat of the infant is extinguished, wherewith before her heate was doubled : many filthy excrements come from her, and also the mothers breath stinketh, she swouneth often, all which for the most part happen within three daies after the death of the childe : for the infants body will sooner corrupt in the mothers wombe than it would in the open aire, because that, according to the judgement of *Galen*, all hot and moist things, being in like manner enclosed in a hot and moist place, especially if by reason of the thicknesse or straitnesse of the place they cannot receive the aire, will speedily corrupt. Now by the rising up of such vapours from the dead unto the braine and heart, such accidents may soone follow, her face will be clean altered, seeming livid and ghastly, her dugs fall and hang loose and lanke, and her belly will be more hard and swollen than it was before. In all bodies so putrefying, the naturall heat vanisheth away, and in place thereof succeedeth preternaturall, by the working whereof the putrefyed and dissolved humours are stirred up into vapours, and converted into winde, and those vapours, becaute they possesse and fill more space and roome (for naturalists say that of one part of water ten parts of aire are made) doe so puffed up the putrefyed body into a greater bignesse. You may note the same thing in bodies that are gangrenate, for they cast forth many sharpe vapours, yet neverthelesse they are swollen and puffed up.

Now so soone as the Chirurgicall shall know that the childe is dead by all these forenamed signes, he shall with all diligence endeavour to save the mother so speedily as hee can, and if the Physitians cannot prevaile with potions, bathes, fumigations, sternutatories, vomits, and liniments appointed to expell the infant, let him prepare himselfe to the worke following ; but first let him consider the strength of the woman, for if he perceive that shee bee weake and feeble by the smalnesse of her pulse, by her small, seldome and cold breathing, and by the altered and death-like colour in her face, by her cold sweats, and by the coldnesse of the extreme parts, let him abstaine from the worke, and onely affirme that shee will dye shortly ; contrariwise, if her strength be yet good, let him with all confidence and industry deliver her on this wise from the danger of death.

CHAP. XXVI.

Of the Chyrurgicall extraction of the childe from the wombe either dead or alive.

After what sort
the woman
in travell must
be placed when
the child, being
dead in her
wombe, must be
drawne out.

How she must
be bound.



Herefore first of all the aire of the chamber must bee made temperate, and reduced unto a certaine mediocrity, so that it may neither be too hot nor too cold. Then she must be aptly placed, that is to say, overthwart the bed side, with her buttockes somewhat high, having a hard stuffed pillow or boulder under them, so that she may be in a meane figure of situation, neither sitting altogether upright, nor altogether lying along on her backe ; for so shee may rest quietly, and draw her breath with ease, neither shall the ligaments of the wombe bee extended so as they would if shee lay upright on her backe, her heeles must bee drawn up close to her buttocks, and there bound with broad and soft linnen rowlers. The rowler must first come about her neck, and then crosse wise over her shoulders, and so to the feet, and there it must crosse againe, and so be rowled about the legs and thighes, and then it must be brought up to the necke againe, and there made fast, so that she may not be able to move her selfe, even as one should be tyed when he is to be cut of the stone. But that shee may not bee wearied, or lest that her body should yeeld or sinke downe as the Chirurgicall draweth the body of the infant from her, and so hinder the worke, let him cause her feet to bee set against the side of the bed,

and

and then let some of the strong standers by hold her fast by the legs and shoulders. Then that the aire may not enter into the wombe, and that the worke may bee done with the more decency, her privie parts & thighs must be covered with a warme double linnen cloath. Then must the Chirurgion, having his nailes closely pared, and his rings (if hee weare any) drawne off his fingers, and his armes naked, bare, and well anointed with oyle, gently draw the flappes of the necke of the wombe asunder, and then let him put his hand gently into the mouth of the wombe, having first made it gentle and slippery with much oile; and when his hand is in, let him finde out the forme and situation of the childe, whether it be one or two, or whether it be a Mole or not. And when he findeth that he commeth naturally, with his head toward the mouth or orifice of the wombe, he must lift him up gently, and so turne him that his feet may come forwards, and when he hath brought his feet forwards, he must draw one of them gently out at the necke of the wombe, and then hee must binde it with some broad and soft or silken band a little above the heele with an indifferent slack knot, and when he hath so bound it, he must put it up againe into the wombe, then he must put his hand in againe, and finde out the other foote, and draw it also out of the wombe, and when it is out of the wombe, let him draw out the other againe whereunto he had before tyed the one end of the band, and when hee hath them both out, let him join them both close together, & so by them by little & little let him draw all the whole body from the wombe. Also other women or Midwives may help the endeavour of the Chirurgion, by pressing the patients belly with their hands downwards as the infant goeth out: and the woman her selfe by holding her breath, and closing her mouth and nostrills, and by driving her breath downwards with great violence, may very much helpe the expulsion. I wish him to put backe the foot into the wombe againe after he hath tyed it, because if that he should permit it to remain in the necke of the womb, it would hinder the entrance of his hand when he putteth it in to draw out the other. But if there bee two children in the wombe at once, let the Chirurgian take heed lest that he take not of either of them a legge, for by drawing them so, hee shall profit nothing at all, and yet exceedingly hurt the woman. Therefore that he may not bee so deceived, when hee hath drawne out one foot and tyed it, and put it up againe, let him with his hand follow the band wherewithall the foot is tyed, and so goe unto the foot, and then to the groine of the childe, and then from thence he may soone finde out the other foot of the same child: for if it should happen otherwise, he might draw the legges and the thighes out, but it would come no further, neither is it meet that hee should come out with his armes along by his sides, or bee drawne out on that sort, but one of his armes must bee stretched out above his head, and the other down by his side, for otherwise the orifice of the womb when it were delivered of such a grosse trunke, as it would be when his body should be drawne out with his armes along by his sides, would so shrink and draw it selfe when the body should come unto the necke, onely by the accord of nature requiring union, that it would strangle and kill the infant, so that hee cannot be drawne thence unless it bee with a hooke put under, or fastened under his chinne, in his mouth, or in the hollownesse of his eye. But if the infant lyeth as if hee would come with his hands forwards, or if his hands bee forth already, so that it may seeme hee may bee drawne forth easily that way, yet it must not be so done; for so his head would double backwards over his shoulders, to the great danger of his mother. Once I was called unto the birth of an infant, whom the midwives had assayed to draw out by the arme, so that the arme had been so long forth that it was gangrenate, whereby the childe dyed; I told them presently that his arme must bee put in againe, and hee must bee turned otherwise. But when it could not bee put backe by reason of the great swelling thereof, and also of the mothers genitals, I determined to cut it off with an incision knife, cutting the muscles as neare as I could to the shoulder, yet drawing the flesh upwards, that when I had taken off the bone with a paire of cutting pincers, it might come downe againe to cover the shivered end of the bone, lest otherwise when it were thrust in againe into the wombe, it might hurt the mother. Which being done, I turned him with his feete forwards, and drew him out as is before sayd. But if the tumour either naturally or by some

How the Chirurgion ought to prepare himselfe and his patient to the drawing out of the child from the wombe.

How the infant that is dead in the womb must be turned, bound and drawne out.

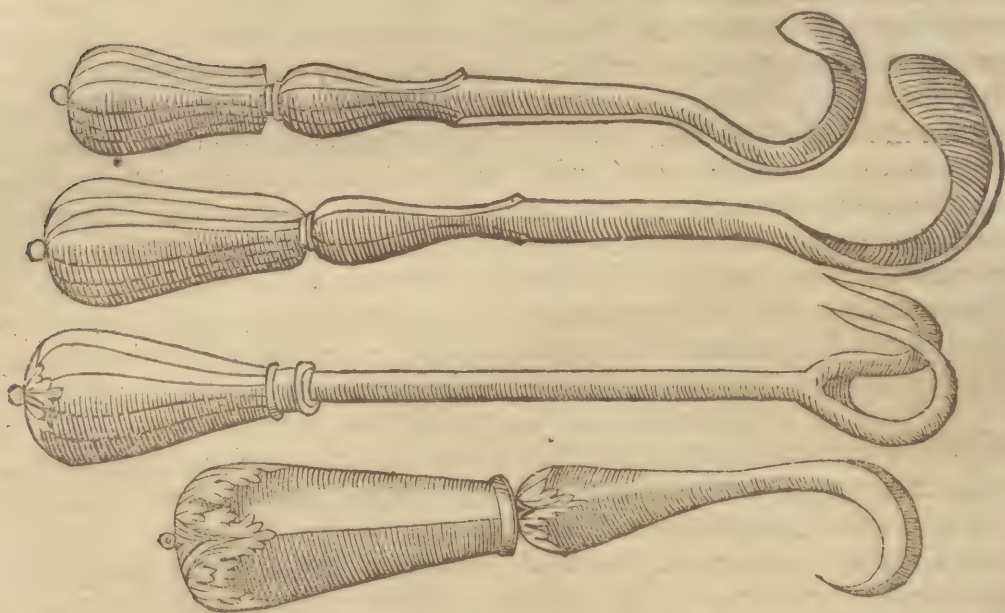
A caution to avoid strangling of the infant in drawing out the body.

Why the child must not bee drawn out with his hands forwards.
A history.

To diminish the
winde wherewith
the infant being
dead in the
wombe, swelleth
& is pulled up
that he cannot
be gotten out of
the wombe.

accident, that is to say, by putrefaction, which may perchance come, bee so great that hee cannot bee turned according to the Chirurgions intention, nor be drawne out according as hee lyeth, the tumour must bee diminished, and then hee must bee drawne out as is aforesaid, and that must bee done at once. As for example, if the dead infant appeare at the orifice of the wombe, which our mydwives call the Garland, when it gapeth, is open and dilated, but yet his head being more great and puffed up with winde so that it cannot come forth, as caused to bee so through that disease which the Greeks call *Mucrophisocephalos*, the Chirurgeon must fasten a hooke under his chinne, or in his mouth, or else in the hole of his eye, or else, which is better and more expedient, in the hinder part of his head. For when the skull is so opened, there will bee a passage whereat the winde may passe out, and so when the tumour falleth and decreaseth, let him draw the infant out by little and little, but not rashly, lest he should break that whereon he hath taken hold: the figure of those hookes is thus.

*The forme of hookes for drawing out the infant that is dead
in the wombe.*



But if the breast bee troubled with the like fault, the hookes must bee fastened about the chanell bone: if there bee a Dropsie or a Tympany in the belly, the hookes must bee fastned either in the short ribs, that is to say, in the muscles that are betweene the ribbes, or especially, if the disease doe also descend into the feete, about the bones that are above the groine; or else putting the crooked knife here pictured into the wombe with his left hand, let him make incision in the childs belly, and so get out all his entrals by the incision, for when hee is so bowelled, all the water that caused the dropsie will out. But the Chirurgeon must do none of all these things but when the child is dead, and the woman that travelleth in such danger that shee cannot otherwise be holpen.

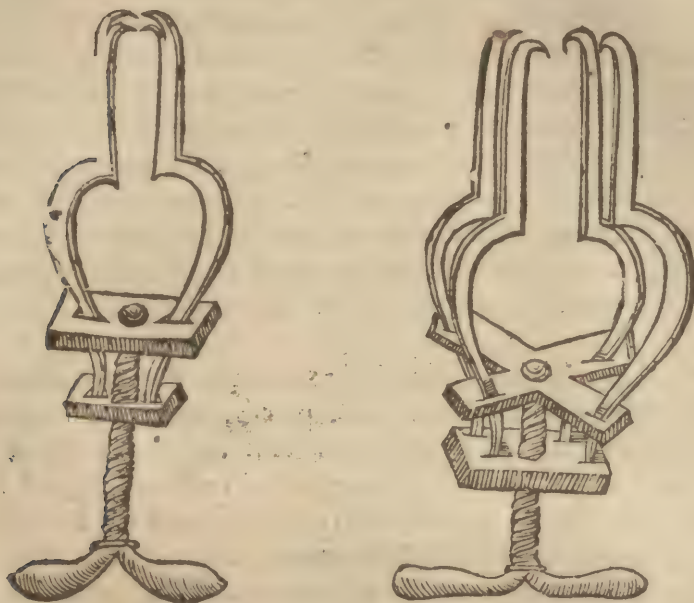
How the head
of the infant, if it
remaine in the
wombe separated
from the
body, may be
drawne out.

But if by any meanes it happeneth that all the infants members bee cut away by little and little, and that the head onely remaineth behinde in the wombe, which I have sometimes against my will, and with great sorrow scene, then the left hand being anoynted with oyle of Lillies or fresh butter must bee put into the wombe, wherewith the Chirurgeon must find out the mouth, putting his fingers into it; then with his right hand hee must put up the hooke, according to the direction of the left hand, gently, & by little & little, and so fasten it in the mouth, eye, or under the chin, and when hee hath firmly fixed or fastened it, hee must therewith draw out the head by little and little, for feare of loosening or breaking the part whereon hee hath hold. In stead of this hooke you may use the instruments that are here descri-

bed

bed, which therefore I have taken out of the Chirurgery of *Francis Dalechamps*, for they are so made, that they may easily take hold of a sphericall and round body with the branches, as with fingers.

Gryphons Talons, that is to say, instruments made to draw out the head of a dead infant that is separated in the wombe from the rest of the body.



But it is not very easie to take hold on the head when it remaineth alone in the wombe, by reason of the roundnesse thereof, for it will slip and slide up and downe, unlesse the belly be pressed downe, and on both sides, thereby to hold it unto the instrument, that it may with more facility take hold thereon.

Why the head being alone in the wombe, is more difficult to be drawne out.

CHAP. XXVII.

What must bee done unto the woman in travell presently after her deliverance.

Here is nothing so great an enemy to a woman in travell, especially to her whole child is drawne away by violence, as cold: wherefore with all care and diligence shee must bee kept and defended from cold. For after the birth, her body being voyde and empty, doth easily receive the ayre that will enter into every thing that is empty, and hence shee waxeth cold, her wombe is distended and puffed up, and the orifices of the vessels thereof are shut and closed, whereof commeth suppression of the after birth, or other after purgations. And thereof commeth many grievous accidents, as hysterickall suffocation, painefull fretting of the guts, feavers, and other mortall diseases.

Cold an enemy to women in travell.

What woman soever will avoyde that discommodity, let her hold her legges or thighes acrosse, for in so doing, those parts that were separated will bee joyned and close together againe. Let her belly bee also bound or rowled with a ligature of an indifferent breadth and length, which may keep the cold ayre from the wombe, and also presse the bloud out that is contained in all the substance thereof. Then give her some Capon broth or Caudle, with Saffron, or with the powder called *Pulvis ducis*, or elle bread toasted and dipped in wine wherein spice is brewed, for to restore her strength, and to keepe away the fretting of the guts. When the secundine is drawne out, and is yet hot from the wombe, it must bee layd warme unto the region of the wombe, especially in the winter, but in the summer, the hot skinn of a Weather newly killed must be laid unto all the whole belly, and unto the

What accidents follow the taking of cold in a woman that is delivered of child.

Secundines must be laid to the region of the wombe whilest they be warme.

region of the loynes. But then the curtaines of the bed must bee kept drawne, and all the windowes and doores of the chamber must bee kept shut with all diligence, that no cold ayre may come unto the woman that travelleth, but that shee may lye and take her rest quietly. The Weathers skinne must bee taken away after that it hath lyen five or sixe houres, and then all the region of her belly must bee annointed with the oyntment following.

Unguent for
the woman in
travell that
the region of
the belly may
not be wrinkled.

The medicine
called Tela
Gualterina.

Rx. spermatis Ceti, ʒii. olei amygdal. dulcium & hypericon. an. ʒi ʒ. sevi hircini. ʒi. olei myrtillor. ʒi. cera nova quantum sufficit; make thereof an oyntment, wherewith let her bee annoynted twice in the day: let a plaster of *Galbanum* bee applyed to the navell, in the middest whereof put some few graines of Civet or Muske, so that the smell of the plaster may not strike up into her nostrils. Then let this medicine following bee applyed, commonly called *Tela Gualterina*. *Rx. cera nova ʒiiii. spermatis Ceti. ʒi ʒ. terebinth. veneta in aqua rosacea lota ʒii. olei amygdal. dulcium & hypericonis an. ʒi. olei mastich. & myrtini, an. ʒ ʒ. axungia cervi ʒi ʒ. melt them all together, and when they are melted, take it from the fire, and then dippe a linnen cloth therein, as bigge as may serve to fit the region of the belly, whereunto it is to bee applyed. These remedies will keepe the externall region of the belly from wrinkling.*

A powder for
the fretting of
the guts.

But of all other, the medicine following excelleth. *Rx. limacum rub. ʒi. florum anthos quart. iii.* let them bee cut all in small pieces, and put into an earthen pot well nealed with lead, and close stopped, then let it bee set in the dung of horses for the space of forty dayes, and then bee pressed or strained, and let the liquour that is strayned out bee kept in a glasse well covered, and set in the sunne for the space of three or foure dayes, and therewith annoynt the belly of the woman that lyeth in child-bed. If shee bee greatly tormented with throwes, let the powder following bee given unto her. *Rx. amfi conditi ʒii. nucis moschat. cornu cervi ust. an. ʒi. ʒ. nucleorum daetyllo. ʒiii. ligni aloës & cinamomi an. ʒii.* make thereof a most subtle powder, let her take ʒi. thereof at once with white wine warme. Or, *Rx. rad. consolida major. ʒi ʒ. nucleorum persicorum, nucis moschat. an. ʒii. carab. ʒ ʒ. ambra graæ gra. iiiii.* make thereof a powder, let her take one dramme thereof at a time with white wine, or, if shee have a feaver, with the broth of a Capon. Let there be hot bagges applyed to the genitalls, belly and raynes; these bagges must bee made of millet and oates fryed in a frying-pan with a little white wine.

What must bee
done when the
groine is torne
in child-birth.

But if through the violence of the extraction the genitall parts bee torne, as ancient writers affirm it hath come to passe, so that the two holes, as the two holes of the privie parts and of the fundament have beene torne into one, then that which is rent must bee stitched up, and the wound cured according to art. Which is a most unfortunate chance for the mother afterwards, for when shee shall travell againe, shee cannot have her genitall parts to extend and draw themselves in againe by reason of the scarre. So that then it will bee needfull that the Chirurgion shall againe open the place that was cicatrized, for otherwise shee shall never bee delivered, although shee strive and contend never so much. I have done the like cure in two women that dwelt in Paris.

CHAP. XXVIII.

*What cure must bee used to the Dugges and Teates of those that
are brought to bed.*

To drive the
milke downe-
wards.



IF great store and abundance of milke bee in the breasts, and the woman bee not willing to nurse her owne childe, they must bee annoynted with the unguent following, to repell the milke, and cause it to bee expelled through the wombe. *Rx. olei ros. myrtini an. ʒiii. acetii rosat. ʒi.* incorporate them together, and therewith annoynt the dugges foure times a day, and presently after the annoynting besprinkle them with the powder of myrtils, and then apply the plaster following. *Rx. pulv. mastichini,*

nucis moschat. an. ʒii. nucis cupressi ʒiii. balaust. myrtill. an. ʒ iʒ. Ireos, florent. ʒʒ. olei myrtini ʒ iii. terebinth. veneta ʒ ii. cera nova quantum sufficit, make thereof a soft plaster.

The leaves of brooke-lime, cresses and boxe boyled together in urine and vinegar, are thought a present remedy for this purpose, that is to say, to draw the milke from the breasts. And others take the clay that falleth downe into the bottome of the trough wherein the grindstone, whereon swords are grownd, turneth, and mixe it with oyle of roses, and apply it warme unto the dugges, which in short space, as it is thought, will assuage the paine, stay the inflammation, and drive the milke out of the dugges. The decoction of ground Ivie, Peruwinkle, Sage, redde Roses and roach Alome being prepared in oxycrate, and used in the forme of a fomentation, is thought to performe the like effect: the like vertue have the lees of red wine, applyed to the dugges with vinegar, or the distilled water of unripe Pine-apples applyed to the breasts with linnen clothes wet therein, or hemlocke beaten and applyed with the young and tender leaves of a gourd.

This medicine following is approved by use: Take the leaves of Sage, Smal-lage, Rue, and Chervill, and cut or chop them very small, and incorporate them in vinegar and oyle of Roses, and so apply it warme to the breast, and renew it twice a day. In the meane time let Cupping-glasses bee applyed to the inner side of the thigh and groine, and also above the navell. For this is very effectuall to draw the milke out of the breasts into the wombe by the veines, whereby the wombe communiceth with the breasts. Moreover, they may let children or little welpes sucke their breasts, whereby they may draw out the milke that is fixed fast in their dugges, in steed whereof wee have invented this instrument of glasse, wherewith, when the broader orifice is fastened or placed on the breast or dugge, and the pipe turned upwards towards her mouth, shee may suck her owne breasts her selfe.

By what reason, and which way cupping-glasses, being fastened on the groine or above the navell, do draw the milke out of the breasts.

The forme of a little glasse, which being put on the nipple, the woman may sucke her owne breasts.



In steede of this instrument, a violl of glasse being first made warme, and the mouth thereof applyed to the nipple or teat, by reason of the heate and wide-nesse thereof will draw the milke forth into the bottome thereof, as it were by a certaine sucking. The after purgations being first evacuated, which is done for the most part within twenty dayes after the birth, if the woman bee not in danger of a feaver, nor have any other accident, let her enter into a bath, made of mar-jerome, mints, sage, rosemary, mugwort, agrimonie, pennyroyall, the flowers of chamomile, melilote, dill, being boyled in most pure and cleare running water. All the day following let another such like bath bee prepared, whereunto let these things following bee added. R. *farini fabarum & aven. an. lb. iii. farin. orobi, lupinor. & gland. an. lb. i. aluminis rock. ʒiiii. salis com. lb. ii. gallarum, nucum cupressi, an. ʒiii. rosar. rub. m. vi. chariophyl. nucum moschat. an. ʒ iii.* boyle them all in common water, then sew them all in a cleane linnen cloth, as it were in a bagge, and cast them therein into the bath wherein Iron red hot hath beene extinguished, and let the woman that hath lately travelled sit downe therein so long, as shee pleaseth, and when shee commeth out, let her bee layd warme in bedde, and

and let her take some preserved Orange pill, or bread toasted and dipped in Ipocras, or in wine brewed with spices, and then let her sweate, if the sweate will come forth of its owne accord.

Astringent fomentations for the privie parts.

A distilled liquor for to draw together the dugs that are loose and slacke.

On the next day let astringent fomentations bee applyed to the genitals on this wise prepared. *Rx. gallar. nucum Cupressi, corticum granat. an. 3 i. rosar. rub. m. i. thymi, major an. an. m. ʒ. aluminis rocha, salis com. an. 3 ii.* boyle them all together in redde wine, and make thereof a decoction for a fomentation, for the forenamed use. The distilled liquor following is very excellent and effectuell to confirme and to draw in the dugges, or any other loose parts. *Rx. charyophyl. nucis moschat. nucum cupressi. an. 3 i ʒ. mastich. 3 ii. alumin. roch. 3 i ʒ. glandium & corticis querni, an. ʒ ʒ. rosar. rubr. m. i. cort. granat. 3 ii. terra sigillat. 3 i. cornu cervi usti 3 ʒ. myrtillor. sanguinis dracon. an. 3 i. boli armeni. 3 ii. ireos florent. 3 i. sumach. berber. Hyppuris, an. m. ʒ. conquassentur omnia, & macerentur spatio duorum dierum. in ʒ ʒ. aqua rosarum ʒ ii. prunorum syvestr. mespilorum, pomorum quernorum, & ʒ ʒ. aqua fabrorum, aceti denique fortiss. 3 iv.* afterward distill it over a gentle fire, and keep the distilled liquor for your use, wherewith let the parts be fomented twice in a day. And after the fomentation, let wollen clothes or stupes of linnen cloth be dipped in the liquor, and then pressed out and laid to the place. When all these things are done and past, the woman may againe keep company with her husband.

CHAP. XXIX.

What the causes of difficult and painefull travell in child-birth are.

The causes of the difficult child-birth that are in the woman that travelleth.



He fault dependeth sometimes on the mother, and sometimes on the infant or childe within the wombe. On the mother, if shee bee more fat, if shee bee given to gurmundize or great eating, if she be too leane or yong, as *Savonarola* thinketh her to bee, that is great with childe at nine yeares of age, or unexpert, or more old, or weaker than shee should bee, eyther by nature or by some accident: as by diseases that shee hath had a little before the time of child-birth, or with a great fluxe of blood. But those that fall in travell before the full and prefixed time, are very difficult to deliver, because the fruit is yet unripe, and not ready or easie to bee delivered. If the necke or orifice of the wombe bee narrow, eyther from the first conformation, or afterwards by some chance, as by an ulcer cicatrized: or more hard and callous, by reason that it hath beene torne before at the birth of some other childe, and so cicatrized againe, so that if the cicatrized place bee not cut even in the moment of the deliverance, both the childe and the mother will bee in danger of death; also the rude handling of the mydwife may hinder the free deliverance of the child. Oftentimes women are letted in travell by shamefastnesse, by reason of the presence of some man, or hate to some woman there present.

The passions of the mind hinder the birth.

If the secundine bee pulled away sooner than it is necessary, it may cause a great fluxe of blood to fill the wombe, so that then it cannot performe his exclusive faculty, no otherwise than the bladder when it is distended by reason of overabundance of water that is therein, cannot cast it forth, so that there is a stoppage of the urine. But the wombe is much rather hindred, or the faculty of child-birth is stopped or delayed, if together with the stopping of the secundine, there be either a mole or some other body contrary to nature in the wombe. In the secundines of two women whom I delivered of two children that were dead in their bodies, I found a great quantiry of sand like unto that that is found about the banks of rivers, so that the gravell or sand that was in each secundine was a full pound in weight.

The causes of difficult child-birth that are in the infant.

Also the infant may bee the occasion of difficult child-birth, as, if too bigge, if it come overthwart, if it come with its face upwards, and its buttocks forwards, if it come with its feet and hands both forwards at once, if it be dead and swolne by reason of corruption, if it bee monstrous, if it have two bodies or two heads, if it bee manifold or seven-fold, as *Albucasis* affirmeth hee hath scene, if there bee a mole annexed

annexed thereto, if it be very weak, if when the waters are flow'd out, it doth not move or stirre, or offer its selfe to come forth. Yet notwithstanding, it happeneth sometimes that the fault is neither in the mother nor the childe, but in the aire, which being cold, doth so binde, congeale and make stiffe the genitall parts, that they cannot bee relaxed: or, being contrariwise too hot, it weakeneth the woman that is in travell, by reason that it wasteth the spirits, wherein all the strength consisteth: or in the ignorant and unexpert mydwife, who cannot artificially rule and governe the endeavours of the woman in travell.

The externall
causes of diffi-
cult child-birth.

The birth is wont to bee easie, if it bee in the due and prefixed naturall time, if the childe offer him selfe lustily to come forth with his head forwards, presently after the waters are come forth, and the mother in like manner lusty and strong: those which are wont to bee troubled with very difficult child-birth, ought a little before the time of the birth, to goe into an halfe tub filled with the decoction of mollifying roores and feeds, to have their genitals, wombe, and necke thereof to be anoynted with much oyle, and the intestines that are full and loaded must bee unburthened of the excrements, and then the expulsive faculty provoked with a sharpe glyster, that the tumours and swelling of the birth concurring therewith, the more easie exclusion may be made. But I like it rather better, that the woman in travell should be placed in a chaire that hath the backe thereof leaning backwards, than in her bed, but the chair must have a hole in the bottome, whereby the bones that must be dilated in the birth, may have more freedome to close themselves againe.

Which is an ea-
sie birth.

What causeth
easynesse of
child birth.

CHAP. XXX.

The causes of Abortion or untimely birth.

ABORTION or untimely birth is one thing, and effluxion another. They call abortion the sudden exclusion of the childe already formed and alive, before the perfect maturity thereof. But that is called effluxion, which is the falling downe of seeds mixed together and coagulated but for the space of a few dayes, onely in the formes of membranes or tumours, congealed blood, and of an unshapen or deformed piece of flesh; the mydwives of our countrey call it a false branch or budde. This effluxion is the cause of great paine and most bitter and cruell torment to the woman: leaving behinde it weakenesse of body farre greater than if the childe were borne at the due time. The causes of abortion or untimely birth, whereof the the child is called an abortive, are many, as a great scouring, a strangury joyned with heate and inflammation, sharpe fretting of the guts, a great and continuall cough, exceeding vomiting, vehement labour in running, leaping, and dauncing, and by a great fall from on high, carrying of a great burthen, riding on a trotting horse, or in a Coach, by vehement, often and ardent copulation with men, or by a great blow or stroke on the belly. For all these & such like vehement and inordinate motions dissolve the ligaments of the wombe, and so cause abortion or untimely birth.

What Aborti-
on is.

What Effluxi-
on is.

Women are in
more paine by
reason of the ef-
fluxion than at
the true birth.
The causes of
Abortion.

Also whatsoever presseth or girdeth in the mothers belly, and therewith also the wombe that is within it, as are those Ivory or Whale-bone buskes, which women weare on their bodies, thereby to keepe downe their bellies; by these and such like things the childe is lerted or hindred from growing to his full strength, so that by expression, or as it were by compulsion, hee is often forced to come forth before the legitimate and lawfull time. Thundering, the noyse of the shooting of great Ordnance, the sound, and vehement noyse of the ringing of Bells constrain women to fall in travell before their time, especially women that are young, whose bodies are soft, slacke and tenderer than those that bee of riper yeares. Long and great fasting, a great fluxe of blood, especially when the infant is growne somewhat great: but if it bee but two moneths old, the danger is not so great, because then hee needeth not so great quantity of nourishment, also a long disease of the mother, which consumeth the blood, causeth the childe to come forth being destitute of

Girding of the
belly may cause
untimely birth.

store

How bathes &
hot houſes cauſe
untimely birth.

ſtore of nourishment before the ſit time. Moreover, fulneſſe, by reaſon of the eating great ſtore of meates, often maketh or cauſeth untimely birth; becauſe it depraveth the ſtrength, and preſſeth down the child: as likewiſe the uſe of meats that are of an evill juice, which they luſt or long for. But bathes, becauſe they relaxe the ligaments of the wombe, and hot houſes, for that the fervent and choaking ayre is received into the body, provoke the infant to ſtrive to goe forth to take the cold ayre, and ſo cauſe abortion.

Hip. aph. 53. &
37 ſ. 6. 5.
Hip. aph. 45. ſ. 5.

What women ſoever, being indifferently well in their bodies, travell in the ſecond or third moneth without any manifeſt cauſe, thoſe have the Corylidones of their womb full of filth and matter, and cannot hold up the infant, by reaſon of the weight thereof, but are broken: Moreover, ſudden or continuall perturbations of the minde, whether they bee through anger or feare, may cauſe women to travell before their time, and are accounted as the cauſes of abortions, for that they cauſe great and vehement trouble in the body. Thoſe women that are like to travell before their time, their dugs will wax little: therefore when a woman is great with childe, if her dugs ſuddenly wax ſmall or ſlender, it is a ſigne that ſhee will travell before her time; the cauſe of ſuch ſhrinking of the dugs is, that the matter of the milke is drawne back into the wombe, by reaſon that the infant wanteth nourishment to nourish and ſuccour it withall. Which ſcarcity the infant not long abiding, ſtriveth to goe forth to ſeek that abroad which he cannot have within, for among the cauſes which do make the infant to come out of the womb, thoſe are moſt uſually named with Hippocrates, the neceſſity of a more large nutriment and aire.

Hip. aph. 38. ſ. 5.

Women are in
more pain at the
untimely birth
than at the due
time of birth.

The error of
the firſt child-
birth continues
afterwards.

A plaſter ſtay-
ing the infant
in the wombe.

What children
are ten or e-
leven moneths
in the wombe,

A male will bee
borne ſooner
than a female.

Therefore if a woman that is with child have one of her dugs ſmall, if ſhe have two children, ſhe is like to travell of one of them before the full and perfect time: ſo that if the right dug be ſmall, it is a man child, but if it be the left dug it is a female. Women are in farre more paine when they bring forth their children before the time, than if it were at the full and due time, becauſe that whatſoever is contrary to nature, is troubleſome, painefull, and alſo oftentimes dangerous. If there be any error committed at the firſt time of childe-birth, it is commonly ſeene that it happeneth alwayes after at each time of child-birth. Therefore, to find out the cauſes of that error, you muſt take the counſell of ſome Phyſician, and after his counſell endeavour to amend the ſame. Truly this plaſter following being applyed to the reines doth confirme the wombe, and ſtay the infant therein. *Rx. ladam* ʒ ii. *galang.* ʒ i. *nucis moſchat. nucis eupreſſi, boli armeni, terra ſigill. ſanguin. dracon. balanſt. an.* ʒ ʒ. *acatia, pſidiorum, hypociſtid. an.* ʒ i. *maſtich. myrrha, an.* ʒ ii. *gummi arabic.* ʒ i. *terebinth. veter.* ʒ ii. *picis naval.* ʒ i. *ʒ. cera quantum ſufficit, fiat emplaſt. ſecundem artem;* ſpread it for your uſe upon leather. If the part begin to itch, let the plaſter be taken away, & in ſtead thereof uſe *unguent. roſat.* or *refrig. Galen.* or this that followeth. *Rx. olei myrtini, maſtich. cydonior. an.* ʒ i. *hypociſt. boli armen. ſang. dracon. acatia, an.* ʒ i. *ſant. citrini* ʒ ʒ. *cera quant. ſuf.* make thereof an oyntment according unto art. There are women that beare the child in their wombe ten or eleven whole moneths, and ſuch children have their conformation of much and large quantity of ſeede: wherefore they will bee more bigge, great and ſtrong, and therefore they require more time to come to their perfection and maturity; for thoſe fruits that are great will not bee ſo ſoone ripe as thoſe that are ſmall. But children that are ſmall and little of body do often come to their perfection and maturity in ſeven or nine months: if all other things are correſpondent in greatneſſe and bigneſſe of body, it happeneth for the moſt part that the woman with child is not delivered before the ninth moneth bee done, or at the leaſtwiſe in the ſame moneth. But a male child will bee commonly borne at the beginning, or a little before the beginning of the ſame moneth, by reaſon of his engrafted heat which cauſeth maturity and ripeneſſe. Furthermore, the infant is ſooner come to maturity and perfection in a hot woman than in a cold, for it is the property of heat to ripen.

CHAP. XXXI.

How to preserve the infant being in the wombe, when the mother is dead.



All the signes of death appeare in the woman that lieth in travell, and cannot be delivered, there must then be a Chirurgicalian ready and at hand, which may open her body so soone as shee is dead, whereby the infant may be preserved in safety; neither can it bee supposed sufficient if the mothers mouth and privie parts bee held open; for the infant being enclosed in his mothers wombe, and compassed with the membranes, cannot take his breath, but

Why it is not sufficient to preserve life in the childe to hold open the mouth and privie parts of the mother so soone as shee is dead and the childe alive in her body.

by the contractions and dilatations of the artery of the navell. But when the mother is dead, the lungs doe not execute their office and function: therefore they cannot gather in the aire that compasseth the body by the mouth or *aspera arteria* into their owne substance, or into the arteries that are disperfed throughout the body thereof, by reason whereof it cannot send it unto the heart by the veiny artery which is called *arteria venalis*: for if the heart want aire, there cannot bee any in the great artery which is called *arteria aorta*, whose function it is to draw it from the heart; also by reason thereof it is wanting in the arteries of the wombe, which are as it were the little conduits of that great artery, whereinto the aire that is brought from the heart is derived, and floweth in unto these little ones of all the body, and likewise of the wombe. Wherefore it must of necessity follow that the aire is wanting to the coryledons of the secundines, to the arterie of the infants navell, the iliacke arteries also, and therefore unto his heart, and so unto all his body: for the aire being drawne by the mothers lungs, is accustomed to come to the infant by this continuation of passages. Therefore because death maketh all the motions of the mothers body to cease, it is farre better to open her body so soone as shee is dead, beginning the incision at the cartelage, *Xiphoides*, or breast-blade, and making it in a forme semicircular, cutting the skinned, muscles and *peritonaeum*, not touching the guts: then the wombe being lifted up, must first be cut, lest that otherwise the infant might perchance be touched or hurt with the knife.

How the belly of the woman that dieth in travell must be cut open to save the childe.

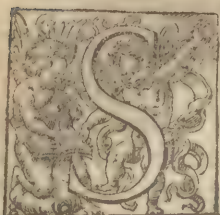
You shall oftentimes finde the childe unmoveable, as though hee were dead; but not because he is dead indeed, but by reason that he, being destitute of the access of the spirits by the death of the mother, hath contracted a great weaknesse: yet you may know whether hee be dead indeed or not, by handling the artery of the navell, for it will beat and pant if he be alive, otherwise not; but if there be any life yet remaining in him, shortly after he hath taken in the aire, and is recreated with the access thereof, he will move all his members, and also all his whole body. In so great a weaknesse or debility of the strength of the childe, the secundine must not bee separated as yet from the childe, by cutting the navell string, but it must rather be laid close to the region of the belly thereof, that thereby the heat (if there be any jot remaining) may bee stirred up againe. But I cannot sufficiently marvaile at the infolency of those that affirme that they have seene women whose bellies and wombe have bin more than once cut, and the infant taken out, when it could no otherwise be gotten forth, and yet notwithstanding alive; which thing there is no man can perswade me can be done, without the death of the mother, by reason of the necessary greatnesse of the wound that must be made in the muscles of the belly, and substance of the wombe, for the wombe of a woman that is great with childe, by reason that it swelleth, and is distended with much blood, must needs yeeld a great flux of blood, which of necessity must be mortall. And to conclude, when that the wound or incision of the wombe is cicatrized, it will not permit or suffer the womb to be dilated or extended to receive or beare a new birth. For these and such like other causes, this kinde of cure, as desperate and dangerous, is not (in mine opinion) to be used.

How it may bee known whether the infant be alive or not.

CHAP. XXXII.

Of superfetation.

What superfetation is.



Superfetation is when a woman doth beare two or more children at one time in her wombe, and they bee enclosed each in his severall secundine: but those that are included in the same secundine, are supposed to bee conceived at one and the same time of copulation, by reason of the great and copious abundance of seed, and these have no number of daies between their conception & birth,

but all at once. For as presently after meat the stomacke which is naturally of a good temper, is contracted or drawn together about the meate, to comprehend it on every side, though small in quantity, as it were by both hands, so that it cannot rowle neither unto this or that side; so the wombe is drawne together unto the conception about both the seeds, as soone as they are brought into the capacity thereof, and is so drawne in unto it on every side, that it may come together into one body, not permitting any portion thereof to goe into any other region or side, so that by one time of copulation the seed that is mixed together, cannot engender more children than one, which are devided by their secundines. And moreover, because there are no such cells in the wombes of women, as are supposed, or rather knowne to bee in the wombs of beasts, which therefore bring forth many at one conception or birth. But now if any part of the womans wombe doth not apply and adjoine it selfe closely to the conception of the seed already received, lest any thing should be given by nature for no purpose, it must of necessity follow that it must be filled with aire, which will alter and corrupt the seeds. Therefore the generation of more than one infant at a time, having every one his severall secundine, is on this wise. If a woman conceive by copulation with a man as this day, and if that for a few daies after the conception, the orifice of the wombe be not exactly shut, but rather gape a little, and if shee doe then use copulation againe, so that at both these times of copulation there may be an effusion or perfect mixture of the fertile seed in the wombe, there will follow a new conception, or superfetation. For superfetation is no other thing than a certaine second conception, when the woman already with childe, againe useth copulation with a man, and so conceiveth againe, according to the judgement of *Hippocrates*. But there may be many causes alledged why the wombe which did joyne and close doth open and unclose it selfe againe. For there bee some that suppose the wombe to be open at certaine times after the conception, that there may be an issue out for certaine excrementall matters that are contained therein, and therefore that the woman that hath so conceived already, and shall then use copulation with a man againe, shall also conceive againe.

A womans wombe is not distinguished into divers cells.

The reason of superfetation.

Lib. de Superfetatione.
Why the wombe after the conception of the seed, doth many times afterwards open.

Lib. 7. cap. 11.

Others say that the wombe of it selfe, and of its own nature is very desirous of seed or copulation, or else being heated or enflamed with the pleasant motion of the man moving her thereto, doth at length unclose it selfe to receive the mans seed: for likewise it happeneth many times that the orifice of the stomack being shut after eating, is presently unloosed again, when other delicate meats are offered to be eaten: even so may the wombe unclose it selfe againe at certain seasons, whereof come manifold issues, whose time of birth and also of conception are different. For as *Pliny* writeth, when there hath bin a little space between two conceptions, they are both hastened, as it appeared in *Hercules* and his brother *Iphicles*; and in her, which having two children at a birth, brought forth one like unto her husband, and another like unto the adulterer. And also in the Procomesian slave or bond-woman, who by copulation on the same day brought forth one like unto her master, and another like unto his steward: and in another who brought forth one at the due time of childe-birth, and another at five moneths end. And againe in another, who bringing forth her burthen on the seventh moneth, brought forth two more in the moneths following. But this is a most manifest argument of superfetation, that as many children as are in the wombe (unlesse they bee twinnes of the same sexe) so many secundines are there,

there, as I have often seene my selfe. And it is very likely that if they were conceived in the same moment of time, that they should all bee included in one secundine. But when a woman hath more children than two at one burden, it seemeth to bee a monstrous thing, because that nature hath given her but two breasts. Although wee shall hereafter rehearse many examples of more numerous births.

CHAP. XXXIII.

Of the tumour called *Mola*, or a *Mole* growing in the wombe of Women.



OF the greeke word *Myle*, which signifieth a Mill-stone, this tumour called *Mola* hath its name: for it is like unto a Mill-stone both in the round or circular figure, and also in hard consistence, for the which selfe same reason the whirle-bone of the knee is called of the Latines *mola*, and of the Greeks *Myle*. But the tumor called *Mola*, whereof we

The reason of the name.

heere entreate, is nothing else but a certain false conception of deformed flesh, round and hard, conceived in the wombe as it were rude and unperfect, and not distinguished into members, comming by corrupt, weake, and diseased seed, and of the immoderate fluxe of the termes, as it is defined by *Hippocrates*. This is enclosed in no secundine, but as it were in its owne skinne.

What a *mola* is.

Lib. de steril.

There are some that thinke the *Mola* to bee engendered of the concourse or mixture of the womans seed and menstruall blood, without the communication of the mans seed. But the opinion of *Galen* is, that never any man saw a woman conceive either a *Mola*, or any other such thing, without copulation of man, as an hen laieth eggs without a cock: for the onely cause and originall of that motion is in the mans seed, and the mans seed doth onely minister matter for the generation thereof. Of the same opinion is *Avicen*, who thinketh the *Mola* to be made by the confluxion of the mans seed that is unfertile, with the womans; when as it, because unfruitfull, onely puffes up or makes the womans seed to swell as leaven into a greater bignesse, but not into any perfect shape or forme. Which is also the opinion of *Fernelius*, by the decrees of *Hippocrates* and *Avicen*: for the immoderate fluxes of the courses are conducing to the generation of the *mola*, which overwhelming the mans seed, being now unfruitfull and weake, doth constraine it to desist from its enterprize of conformation already begun, as vanquished or wholly overcome: for the generation of the *mola* commeth not of a simple heat working upon a clammy and grosse humour, as wormes are generated; but of both the seeds, by the efficacy of a certaine spirit, after a sort prolificall, as may be understood by the membranes wherein the *mola* is enclosed, by the ligaments whereby many times it is fastened or bound to the true conception or child, engendered or begotten by superfoetation; and finally, by the encrease, and great and sluggish waight. If all men were not perswaded that the conflux of a mans seed must of necessity concur to the generation of the *mola*, it would bee no small cloake or cover to women to avoide the shame and reproach of their light behaviour.

Cap. 7. lib. 4. de usu part.

How the *mola* is engendered.

CHAP. XXXIIII.

How to discerne a true conception from a false conception or *Mola*.



WHEN the *mola* is enclosed in the wombe, the same things appear as in the true and lawfull conception. But the more proper signes of the *mola* are these: there is a certaine pricking paine, which at the beginning troubleth the belly as if it were the cholicke, the belly will swell sooner than it would if it were the true issue, and will be distended with greater hardnesse, and is more difficult and troublesome to carry, because it is contrary to nature,

The signes of a *mola* enclosed in the wombe.

and voyd of soule or life. Presently after the conception the dugges swell and puffed up, but shortly they fall and become lanke and lax; for nature sendeth milk thither in vaine, because there is no issue in the wombe that may spend the same. The *mola* will move before the third month, although it be obscurely, but the true conception will not: but this motion of the *mola* is not of the intellectuall soule, but of the faculty of the wombe, and of the spirit of the seed disperfed through the substance of the *mola*; for it is nourished and encreaseth after the manner of plants, but not by reason of a soul or spirit sent from above, as the infant doth. Moreover, that motion that the infant hath in its due and appointed time, differeth much from the motion of the *mola*; for the childe is moved to the right side, to the left side, and to every side gently, but the *mola*, by reason of its heaviness, is fixed, and rowleth in manner of a stone, carried by the weight thereof unto what side soever the woman declineth her selfe. The woman that hath a *mola* in her wombe doth daily waxe leaner and leaner in all her members, but especially in her legges, although notwithstanding towards night they will swell, so that shee will bee very slow or heavie in going, the naturall heat forsaking the parts remote from the heart by little and little; and moreover, her belly swells, by reason that the menstruall matter resteth about those places, and is not consumed in the nourishment of the *mola*: she is swolne as if she had the dropfie, but that it is harder, and doth not rise againe when it is pressed with the fingers. The navell doth not stand out as it will do when the true issue is contained in the womb, neither do the courses flow as they sometimes do in the true conception; but sometimes great fluxes happen, which ease the waight of the belly. In many when the *mola* doth cleave not very fast, it falleth away within three or foure moneths, being not as yet come unto its just bignesse; and many times it cleaveth to the sides of the wombe and Cotyledons very firmly, so that some women carry it in their wombs five or sixe yeeres, and some as long as they live.

By what faculty the wombe moveth.

How the motion of the *mola* differeth from the motion of the infant in the wombe.

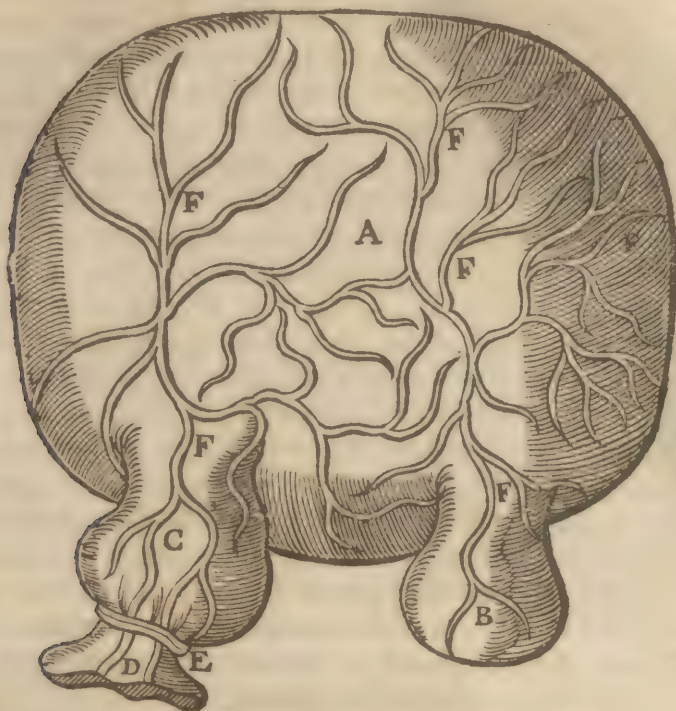
The *mola* doth turne to each side of the wombe, as the situation of the body is.

A history.

The description of a *mola* carried seventeen yeeres in the wombe.

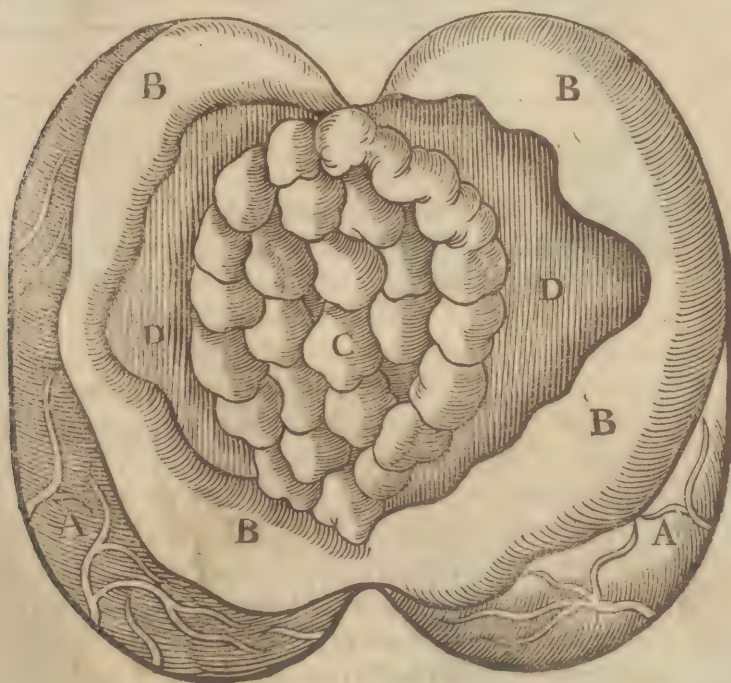
The wife of *Guiliam Roger Pewterer*, dwelling in *S. Victors* street, bore a *mola* in her womb seventeen yeeres, who being of the age of fifty yeeres, died; and I having opened her, found the body of her womb to be almost loosed, and not tyed or bound by its accustomed ligatures, but as it were hanging onely by the necke, and furthermore cleaving to the Kall adjoyning to it, having but onely one testicle, and that on the right side, and that somewhat broader and looser than usuall: the hornes were not to be seene except it were on that side, the vessells were on the necke onely, and there very manifest and puffed up, it was as bigge as a mans head. When I had taken it out of her body, I brought it home unto my house, that at my leasure I might finde out what was contained in it so long; therefore on a certaine day, calling together the chiefe Physitians of Paris, as *Masilius*, *Alexis*, *Vigor*, de *S. Pont*. *Feure*, *Brovet*, *Violais*, *Grealmus*, *Ravin*, *Marescotius*, *Mibotus*, *Hautin*, *Riolan*, *Luffon*; and Chirurgians, as *Brun*, *Cointerell*, *Guillemeau*: all these being present, I opened the wombe, and I found it in all the body thereof and in the proper tunicle, so schirrhous, and so hard, that I could hardly cut or make a knife to enter into it: the body thereof was three fingers thicke. In the midst of the capacity thereof I found a lumpe of flesh as bigge as both my fists, like unto a Cowes udder, cleaving to the sides of the wombe but in certaine places, of a very thicke, unequall and cloddish substance, with many bodies therein, even as are commonly found in wennes and gristles, disperfed through it as if it were bones. The judgement of all that were present was, that this great tumor at the first was a *mola*, which in process of time degenerated into a schirrous body, together with the proper substance of the womb. Moreover, in the middle of the neck of the womb, we found a tumor as big as a Turkies egge, of substance hard, cartilaginous and bonie, filling all the whole necke, but especially the inward orifice of the womb, which the common people of *France* do call the Garland, so that by that passage nothing could goe out, or enter into the wombe: all that tumour weighed nine pounds and two ounces, which I, by reason of the novelty of the thing, keep in my closet, and here I have described it.

The externall forme and description of the fore-named wombe.



- A. Sheweth the body of the wombe.
 B. The testicle.
 C. The neck of the wombe, wherein that little tumour was contained.
 D. Sheweth the end of the necke of the wombe that was plucked in sunder, and also the vessels whereby it drew the nutriment unto it.
 E. Sheweth the band.
 FFF. The vessels dispersed thorow the wombe.

The description of the womb being open, and shewing the Mola contained therein.



- AA. Shew the externall and superficial part of the wombe.
 BBBB. Shew the thickeesse of the body or proper substance of the wombe.
 C. Sheweth the Mola.
 DD. Shew that concavity wherein the mola was contained or inclosed in the womb.

As long as the woman carried this *Mola* in her wombe, shee felt most sharpe pain in her belly, the region of her belly was marvellous hard, distended and large, as if it were a woman that had many children at once in her wombe, so that many Physicians when the time of child-birth was past, supposed that swelling of the belly to come of the dropsie, and assayed to cure it as they would the dropsie, but for all the medicines they could use, the belly became never the lesser. Oftentimes the urine was stopped for the space of three dayes, and then the making of urine was very painful unto her, and many times also her excrements were stopped for the space of a weeke, by reason that the guts were pressed by the weight of the *Mola*. At certaine seasons, as every third moneth, there came exceeding great fluxes, the matter thereof could not be carried through the capacity of the wombe, as wee said before, because it was exactly shut and stopped, but through the vessels by which virgins, and also certaine other women great with childe evacuate their menstruall matter. If the *Mola* be expelled or cast out in the first or second moneth, as many times it so happeneth, it is called of women an unprofitable or false conception. Sometimes there are found in one wombe two or three moles separated one from another, and sometimes bound or tyed to the sound and perfect infant. As it happened in the wife of *Valleriola* the Physician, which was delivered of a *Mola* which she had carryed in her wombe twelve moneths, annexed with a child of foure moneths old, which had deprived the infant both of its roome and nutriment. For it is alwayes to be certainly supposed, that the *Mola*, as a cruell beast, by its society, and keeping it from its nutriment and place, kils the infant that is joynd unto it.

A vaine or unprofitable conception.

The *mola* kils the infant in the womb when it is fastened unto it.

I remember once I opened the body of a dead woman, which had a *Mola* in her wombe as bigge as a goose egge, which when nature had assayed by many vaine endeavours to cast out, remained notwithstanding, and at length putrefied, and therewith infected the whole wombe, whereof she dyed. There be some which judging themselves great with childe, doe about the ninth or tenth moneth expell no other thing but sounding blasts of winde; whereby the wombe suddenly falling downe and waxing more slender, they are said in a mockery to have been delivered of a fart. To conclude, whatsoever resembles being with child, if it be not excluded at the due and lawfull time of child-birth by its owne accord or by the strength of nature, then must it bee expelled by art.

CHAP. XXXV.

What cure must bee used to the Mola.

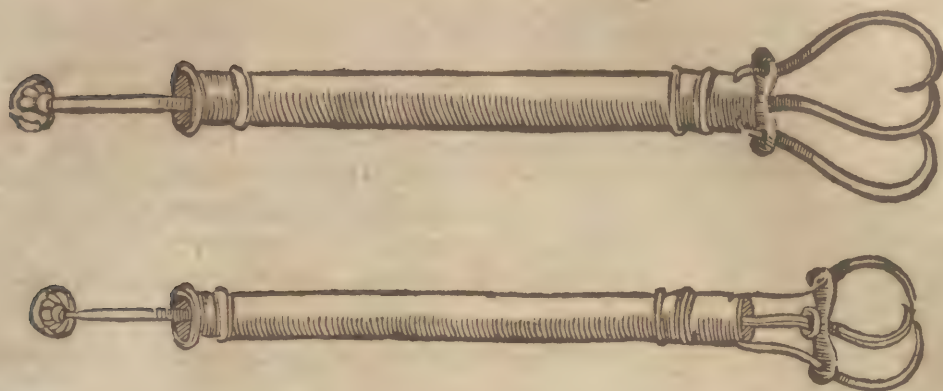
Those things that provoke the flowers for- cibly doe also consume or wast the *mola*.

The Chirurgi- call extraction of the *mola*.



AL L things that provoke the flowers and secundines, and exclude the infant being dead, are to be prescribed, given inwardly, put up, and applied outwardly, as the trochiscs of *myrrha*, *hermodactils*, and such like, first having fomentations that are relaxing and mollifying alwaies applied to the places. You must use these medicines and phlebotomy, diet and bathes then & so long as it shall seem necessary to the Physician that is present. But if it happens that the *mola* is separated or loosed from the wombe, and nature cannot expell it when it is so loosed, let the Chirurgion place the woman in that situation that wee said she was to bee put in, when the child was to bee drawne from her. Then opening her genitall parts, let him take hold on it by putting an instrument into it, which by reason of the likenesse thereof, is called a Gryphons Talon, for it cannot be taken hold on otherwise, by reason of the roundnesse thereof, for it hath no place whereon it may be taken hold of: therefore, when one taketh hold on it with his hand, it cannot be holden fast by reason of the slipperinesse thereof, but will run and slip backe into the hollownesse of the wombe, like unto a bowle or great ball; but it may bee more easily taken hold on with the Gryphons Talon, if the belly be pressed on both sides that it may remaine still while the Gryphons Talon takes hold on it, for when it hath taken good hold on it, it may be easily drawne out. When the *mola* is drawne out, the same cure must be used to the woman, as is used to a woman after that she is delivered of child.

The figure of an instrument called a Gryphons Talon, to draw out the Mola when it is loose in the wombe.



CHAP. XXXVI.

Of Tumours or swellings happening to the Pancreas or sweets-bread, and the whole Mesentery.

THe tumours of other places and parts in the belly ought diligently to be distinguished from the *mola*, and other tumours of the wombe. For when tumours arise in the *glandula* called *Pancreas*, and in all the whole *Mesenterium*, many unskillfull Chirurgions take them for *mola's* or scirrhoustumours of the wombe, and so goe erroneously about to cure them, as shall appeare by those histories following.

Isabel Rolant the wife of John Bony dwelling in Paris in the street Moncey neere to St. Geruise his Church, being threescore yeares of age, departed this life in the year of our Lord God 1578. on the twenty second day of October: and her body being opened in the presence of Doctor Milot the Physician, hee when the Mesentery was taken out of the body, caused it to be carried home to his house, that at his leasure he might find out the cause of this mortall disease, which was alwayes suspected to be in the Mesentery. Therefore on a time calling Varadens, Brove, Chappell, Marefcotius, Arragonius, Baillutius, Reburcius and Riolan, all Doctors of Physick, and me and Pineus Chirurgions, to his house to see the same. Where wee found all the Mesentery and the Pancreas in the Mesentery swolne and puffed up with a marvellous and almost incredible tumour, so that it wayed ten pound and an halfe, altogether scirrhou on the out side, cleaving on the hinder part onely to the vertebres of the loynes: but on the fore part to the *Peritoneum*, being also scirrhou and wholly cartilaginous. Moreover, there were infinite other abscesses in the same Mesentery, every one closed in his severall cyst, some filled with a hony-like, some with a tallow-like, some with an albugineous, and some with a waterish liquor or humour, whereof some also were like unto pap, and to conclude, looke how many abscesses there were, so many kinds or differences of matters there were. It was then eight yeares since that tumour began to grow by little and little without feeling and paine unto such a greatnesse, because that the Mesentery it selfe was without pain in a manner. For the woman her selfe could do all the faculties of nature almost as well as if she had bin sound and whole, except that two moneths before she died, she was constrained to keep her bed, because shee had a continuall feaver, which endured so long as she lived, and also because that the Mesentery, being as it were separated or torne from its roots or seate, did rowle up and downe in the belly, not without the feeling of grievous paine: for, as we said before, it did stick but only to the vertebres of the loynes and *Peritoneum*, and nothing at all to the guts and other parts whereunto it is as it were naturally knit or joyned.

A history.
Apostumes of divers kinds in the Mesenterium.

The accidents that come when the Mesenterium is separated from the bodies adjoining.

The dropſie
comming of a
tumour of the
Mefenterium.

Therefore becauſe the weight and heavineſſe thereof depreſſed the bladder, it cauſed a great difficulty in her making of water, and alſo becauſe it reſted on the guts, it made it very painefull for her to goe to ſtoole, ſo that the excrements would not come downe except ſhee tooke a ſharpe glyſter to cauſe them: and as concerning glyſters, they could not be put up high enough, by reaſon of the greatneſſe of the tumour which enclosed and ſhut the way; and ſuppoſitories did no good at all. It was alſo very difficult for her to take breath, by reaſon that the midriffe or *diaphragma* was compreſſed with the tumour. There were ſome that did ſuſpect it to be a *mola*, others thought that it came by reaſon of the dropſie. Aſſuredly this diſeaſe cauſed the dropſie to enſue; neither was the cauſe thereof obſcure, for the function of the liver was quite fruſtrated by reaſon that the concoction or alteration of the Chylus was intercepted by occaſion of the tumour: and moreover, the liver it ſelfe had a proper diſeaſe, for it was hard and ſcirrhous, and had many abſceſſes both within and without it, and all over it. The milt was ſcarce free from putrefaction, the guts and Kall were ſomewhat blew and ſpotted, and to bee briefe, there was nothing ſound in the lower belly.

Tom. 1. lib. 1. c. 1.

There is the like hiſtory to bee read, written by *Philip Ingraſſias*, in his booke of tumours, of a certaine Moore that was hanged for theft, for (ſaith he) when his body was publiſkely diſſected, in the *Mefenterium* were found ſeventy ſcrophulous tumours, and ſo many abſceſſes were contained or enclosed in their ſeverall cyſts or ſkins, and ſticking to the externall tunicle, eſpecially of the greater guts: the matter conteyned in them was divers, for it was hard, knotty, clammy, glutinous, liquid and wateriſh, but the entrals, eſpecially the liver and the milt, were found and free from all manner of tainture, becauſe (as the ſame Author alledgeth) nature being ſtrong, had ſent all the evill juice, and the corruption of the entrals into the *Mefentery*: and verily this Moore, ſo long as he lived, was in good and perfect health. Without doubt the cor-

Lib 6. part. morb.
cap. 7.

ruption of ſuperfluous humours for the moſt part is ſo great (as it is noted by *Fernelius*) that it cannot bee received in the receptacles that nature hath appointed for it; therefore then no ſmall portion thereof falleth downe into the parts adjoyning, and

The *Mefentery*
um is the ſinke
of the body.

eſpecially into the *Mefentery* and *pancreas*, which are as it were the ſinke of the whole body. In thoſe bodies which through continuall and daily gluttony abound with choler, melancholy and flegme, if it be not purged in time, nature being ſtrong and luſty, doth depell and drive it downe into the *pancreas* and the *Mefentery*, which are as places of no great repute, and that eſpecially out of the liver and milt by thoſe veines or branches of the *vena porta* which end or goe not into the guts, but are terminated in the *Mefentery* and *pancreas*. In theſe places divers humours are heaped together, which in proceſſe of time turne into a looſe and ſoft tumour, & then if they grow bigger, into a ſtiſſe, hard and very ſcirrhous tumour. Whereof *Fernelius* affirmeth that in thoſe places he hath found the cauſes of choler, melancholy, fluxes, dyſenteries, cachexia's, atrophia's, conſumptions, tedious and uncertain fevers, and laſtly of many hidden diſeaſes, by the taking away whereof ſome have received their health, that have been thought paſt cure. Moreover *Ingraſſias* affirmeth out of *Julius Pollux* that Scrophulae may be engendred in the *Mefentery*, which nothing differs from the mind & opinion of *Galen*, who ſaith that Scrophulae are nothing elſe but indurate & ſcirrhous kernels. But the *Mefenterium* with his glandules being great and many, making the *Pancreas*, doth eſtabliſh, ſtrengthen and confirme the diviſions of the veſſels. Alſo the ſcirrhous of the proper ſubſtance of the wombe is to bee diſtinguiſhed from the *mola*: for in the bodies of ſome women that I have opened, I have found the wombe annoyed with a ſcirrhous tumour as big as a mans head, in the curing whereof Phyſicians nothing prevailed, becauſe they ſuppoſed it to bee a *mola* contained in the capacity of the wombe, and not a ſcirrhous tumour in the body thereof.

The Scrophu-
lae in the
Mefenterium.

A ſcirrhous of
the wombe.

CHAP. XXXVII:

Of the cause of barrenesse in men.

Here are many causes of barrenness in men, that is to say, the too hot, cold, dry or moyst distemper of the seed, the more liquid and flexible consistence thereof, so that it cannot stay in the womb, but will presently flow out again: for such is the seed of old men and striplings, and of such as use the act of generation too often and immoderately: for thereby the seed becommeth crude and waterish, because that it doth not remaine his due and lawfull time in the testicles, wherein it should be perfectly wrought and concocted, but is evacuated by wanton copulation. Furthermore, that the seed may be fertile, it must of necessity be copious in quantity, but in quality well concocted, moderately thicke, clammy, and puffed up with the abundance of spirits; both these conditions are wanting in the seed of them that use copulation too often: and moreover, because the wives of those men never gather a just quantity of seede laudible both in quality and consistence in their testicles, whereby it commeth to passe that they are the lesse provoked or delighted with venereous actions, and performe the act with lesse alacrity, so that they yeeld themselves lesse prone to conception. Therefore let those that would be parents of many children use a mediocrity in the use of venery.

How the seed is unfertile.

The woman may perceive that the mans seed hath some distemperature in it, if when shee hath received it into her wombe, shee feeleth it sharpe, hot or cold, if the man be more quick or slow in the act. Many become barren after they have beene cut for the stone, and likewise when they have had a wound behind the eares, where by certaine branches of the jugular veines and arteries have been cut, that are there, so that after those vessels have been cicatrized, there followed an interception of the seminall matter downewards, and also of the community which ought of necessity to be betweene the braine and the testicles, so that when the conduits or passages are stopped, the stones or testicles cannot any more receive, neither matter nor lively spirits from the braine in so great quantity as it was wont, whereof it must of necessity follow, that the seed must bee lesser in quantity, and weaker in quality.

How the cutting of the veines behind the eares maketh men barren.

Those that have their testicles cut off, or else compressed or contused by violence, cannot beget children, because that either they want the help that the testicles should minister in the act of generation, or else because the passage of the seminall matter is intercepted or stopped with a Callus: by reason whereof they cannot yeeld forth seed, but a certaine clammy humour conteyned in the glandules called *prostatæ* (yet with some feeling of delight).

Moreover the defects or imperfections of the yard may cause barrenesse: as, if it be too short, or if it bee so unreasonable great, that it renteth the privie parts of the woman, and so causeth a fluxe of blood, for then it is so painefull to the woman, that shee cannot voyde her seed, for that cannot bee excluded without pleasure and delight, also if the shortnesse of the ligament that is under the yard doth make it to bee crooked, and violate the stiffe straightnesse thereof, so that it cannot be put directly or straightly in the womans privie parts. There bee some that have not the orifice of the conduit of the yard rightly in the end thereof, but a little higher, so that they cannot ejaculate or cast out their seed directly into the wombe.

The defaults of the yard.

Also the particular palsie of the yard is numbred among the causes of barrenesse; and you may prove whether the palsie be in the yard by dipping the genitals in cold water: for except they do draw themselves together or shrinke up after it, it is a token of the palsie, for members that have the palsie, by the touching of cold water, do not shrinke up, but remaine in their accustomed laxity and loosenesse: but in this case the genitals are endued with small sense; the seed commeth out without pleasure or stiffenesse of the yard; the stones in touching are cold; and to conclude, those that have their bodies daily waxing leane through a consumption, or that are vexed with an evill habit or disposition, or with the obstruction of some of the entrals, are barren and unfertile, and likewise those in whom some noble part necessary to life and

The signe of the palsie in the yard.

and generation exceedeth the bounds of nature with some great distemperature, and lastly those who by any meanes have their genitall parts deformed.

Magick bands
and enchanted
knots.

Here I omit those that are withholden from the act of generation by inchantment, magick, witching, and enchanted knots, bands and ligatures, for those causes belong not to physick, neither may they bee taken away by the remedies of our art. The Doctors of the Cannons lawes have made mention of those magick bands which may have power in them, in the particular title *De frigidis, maleficiatis, impotentibus & incantatis*: also St. August. hath made mention of them, *Tract. 7. in Joan.*

CHAP. XXXVIII.

Of the barrennesse or unfruitfulnesse of women.

The cause why
the neck of the
wombe is nar-
row.



Woman may become barren or unfruitfull through the obstruction of the passage of the seed, or through straightnesse or narrownesse of the necke of the wombe, comming either through the default of the formative facultie, or else afterwards by some mischance, as by an abscesse, scirrhus, warts, chaps, or by an ulcer, which being cicatrized, doth make the way more narrow, so that the yarde cannot have free passage thereinto:

The membrane
called *Hymen*.

Moreover, the membrane called *Hymen*, when it groweth in the midst or in the bottom of the neck of the wombe, hinders the receiving of the mans seede. Also if the womb be over slippery, or more loose, or slack, or over wide, it maketh the woman to bee barren, so doth the suppression of the menstruall fluxes, or the too immoderate flowing of the courses or whites: which commeth by the default of the wombe or some entrall, or of the whole body, which consumeth the menstruall matter, and carrieth the seed away with it.

The cause of
the fluxe of
women.

The cold and moyst distemperature of the wombe, extinguishes and suffocates the mans seed, and maketh it that it will not stay or cleave unto the wombe, and stay till it be concocted: but the more hot and dry doth corrupt for want of nourishment, for the seeds that are sowne either in a marish or sandy ground cannot prosper well: also a *mola* contained in the wombe, the falling down of the wombe, the leanness of the womans body, ill humours bred by eating crude and raw fruits, or great or overmuch drinking of water, whereof obstructions and crudities follow, which hinder her fruitfulness. Furthermore, by the use of stupefactive things, the feminall matter is congealed and restrained, and though it flow and be cast out, yet it is deprived of the prolificke power, and of the lively heat and spirits, the orifices or cotylidones of the veines and arteries are stopped, and so the passage for the menstruall matter into the wombe, is stopped. When the Kall is so far that it girdeth in the wombe narrowly, it hindereth the fruitfulness of the woman, because it will nor permit the mans seed to enter into the wombe. Moreover the fat and fleshy habit of the man or woman hinder generation. For it hindreth them that they cannot joyne their genitall parts together: and by how much the more blood goeth into fat, by so much the lesse is remaining to be turned into seed & menstruall blood, which two are the originals & principals of generation. Those women that are speckled in the face, some what lean, & pale, because they have their genitals moystned with a saltish, sharp and tickling humour, are more given to venery than those that are red & fat. Finally, *Hippocrates* sets downe foure causes onely why women are barren and unfruitfull. The first is, because they cannot receive the mans seede, by reason of the default of the neck of the wombe; the second, because when it is received into the wombe, they cannot conceive it; the third is, because they cannot nourish it; the fourth, because they are not able to carry or beare it untill the due and lawfull time of birth. These things are necessary to generation, the object, wil, faculty, concurrence of the seeds, and the remaining or abiding thereof in the wombe, untill the due and appointed naturall time.

Aph. 36. sect. 8.
Gal. lib. 14. de u-
su par. cap. 9.
Arist. in prob.
sect. de ster. que.
3 & 4.

CHAP. XXXIX.

The signes of a distempered wombe.

That woman is thought to have her wombe too hot, whose courses come forth sparingly and with paine, and exulcerate by reason of their heate, the superfluous matter of the blood being dissolved or turned into wind by the power of the heat: whereupon that menstruall blood that floweth forth is more grosse and black. For it is the property of heat, by digesting the thinner substance, to thicken the rest, and by adustion to make it more black. Furthermore, shee that hath her genitals itching with the desire of copulation, will soone exclude the seede in copulation, and shee shall feele it more sharpe as it goeth through the passages. That woman hath too cold a wombe whose flowers are either stopped, or flow sparingly, and those pale and not well coloured.

The signes of a hot wombe.

The signes of a cold wombe.

Those that have lesse desire of copulation, have lesse delight therein, and their seed is more liquid and waterish, and not stayning a linnen cloth by sticking thereunto, and it is sparingly and slowly cast forth. That wombe is too moist that floweth continually with many liquid excrements, which therefore will not hold the seed, but presently after copulation suffereth it to fall out, which will easily cause abortion. The signes of too dry a wombe appeare in the little quantity of the courses, in the profusion of a small quantity of seed, by the desire of copulation, whereby it may be made slippery by the moysture of the seede, by the fissures in the necke thereof, by the chaps and itching, for all things for want of moysture will soone chap, even like unto the ground, which in the summer by reason of a great drought or drynesse, will chap and chinke this way and that way, and on the contrary, with moisture it will close and joyne together againe as it were with glew.

The signes of a moist wombe.

The signes of a dry wombe.

A woman is thought to have all opportunities unto conception when her courses or flowers doe cease, for then the wombe is voyd of excrementall filth, and because it is yet open, it will the more easily receive the mans seede, and when it hath received it, it will better retaine it in the wrinkles of the cotylidones yet gaping as it were in rough and unequall places. Yet a woman will easily conceive a little before the time that the flowers ought to flow: because that the menstruall matter falling at first like dew into the wombe, is very meet and fit to nourish the seede, and not to drive it out againe, or to suffocate it.

A meet time for conception.

Those which use copulation when their courses fall downe abundantly, will very hardly or seldome conceive, and if they doe conceive, the child will be weake and diseased, and especially if the woman's blood that flowes out be unsound; but if the blood be good and laudable, the childe will bee subject to all plethoricke diseases. There are some women in whom presently after the fluxe of the times, the orifice of the wombe will be closed, so that they must of necessity use copulation with a man when their menstruall fluxe floweth, if at least they would conceive at all. A woman may beare children from the age of fourteene untill forty or fifty: which time whosoever doth exceed, will beare untill threescore yeares, because the menstruall fluxes are kept, the prolificall faculty is also preserved: therefore many women have brought forth children at that age, but after that time no woman can beare, as Aristotle writeth.

Arist. 1. 7. de hist. anim. 6. 2. & 6. 5.

Yet Pliny saith that Cornelia (who was of the house of the Scipioes) being in the sixty second yeare of her age, bare Volusius Saturninus, who was Consull; Valescus de Tarenta also affirmeth, that he saw a woman that bare a childe on the sixty second yeare of her age, having borne before on the fixtieth and sixty first yeare. Therefore it is to bee supposed that by reason of the variety of the ayre, region, diet and temperament, the menstruall fluxe and procreative faculty ceaseth in some sooner, in some later; which variety taketh place also in men. For in them although the seede be genitable for the most part in the second seventh yeare, yet truely it is unfruitfull untill the third seventh yeare. And whereas most men beget children untill they bee threescore

Lib. 7. cap. 14.

Lib. 6. cap. 12.

Lib. 7. de hist. anim. 6. 1. & 6. 6.

threeſcore yeers old, which time if they paſſe, they beget till ſeventy : yet there are ſome knowne that have begot children untill the eightieth yeere. Moreover, *Pliny* writeth that *Masiniſſa* the King begot a ſonne when hee was foureſcore and ſixe yeeres of age, and alſo *Cato* the Cenſor after that he was foureſcore.

CHAP. XL.

Of the falling downe, or perverſion, or turning of the wombe.

What is the falling downe of the wombe.



The cauſes.

He wombe is ſaid to fall downe and be perverted, when it is moved out of its proper and naturall place; as when the bands and ligatures thereof being looſed and relaxed, it falleth downe unto one ſide or other, or into its owne necke, or elſe paſſeth further, ſo that it comes out at the necke, and a great portion thereof appeares without the privie parts. Therefore what things ſoever reſolve, relaxe, or burſt the ligaments or bands whereby the wombe is tyed, are ſuppoſed to be the cauſes of this accident. It ſometimes happens by vehement labour or travell in childe-birth, when the wombe with violence excluding the iſſue and the ſecundines, alſo followes and falls downe, turning the inner ſide thereof outward. And ſometimes the fooliſh raſhneſſe of the midwife, when ſhee draweth away the wombe with the infant, or with the ſecundine cleaving faſt thereunto, and ſo drawing it downe and turning the inner ſide outward. Furthermore, a heavie bearing of the womb, the bearing or the carriage of a great burthen, holding or ſtretching of the hands or body upwards in the time of greatneſſe with childe, a fall, contuſion, ſhaking, or jogging by riding, either in a waggon or a coach, or on horſe backe; or by leaping or dancing, the falling downe of a more large and abundant humor, great griping, a ſtrong and continuall cough, a *Teneſmus*, or often deſire to go to ſtoole, yet not voiding any thing, neeſing, a manifold and great birth, difficult bearing of the wombe, an aſmaticall and orthopnoicall difficulty of breathing, whatſoever doth waightily preſſe downe the *Diaphragma* or Midriffe, or the muſcles of the *Epigaſtrium*, the taking of cold aire in the time of travell with childe, or in the flowing of the menſtruall fluxe, ſitting on a cold marble ſtone, or any other ſuch like cold thing, are thought often times to bee the occaſion of theſe accidents, becauſe they may bring the wombe out of its place.

Ariſt. lib. 7. de hiſtor. anim. cap. 2.

It falls downe in many (ſaith *Ariſtotle*) by reaſon of the deſire of copulation that they have, either by reaſon of the luſtineſſe of their youth, or elſe becauſe they have abſtained a long time from it.

The ſignes.

You may know that the wombe is fallen downe by the pain of thoſe parts where- hence it is fallen, that is to ſay by the entrals, loynes, or *sacrum*, and by a tractable tumour at the necke of the wombe, and often with a viſible hanging out, of a di- verſe greatneſſe, according to the quantity that is fallen downe. It is ſeene ſome- times like unto a piece of red fleſh, hanging out at the necke of the wombe, of the bigneſſe and forme of a Goole egge; if the woman ſtand upright, ſhee feeleth the weight to ly on her privie parts, but if ſhe ſit or ly, then ſhe perceiveth it on her back, or goe to the ſtoole, the ſtraight gut called *intestinum rectum* will bee preſſed or loaden as it were with a burthen, if ſhee lye on her belly, then her urine will bee ſtop- ped, ſo that ſhee ſhall feare to uſe copulation with a man.

The prognosti- cations.

When the wombe is newly relaxed in a young woman, it may bee ſoone cured, but if it hath beene long downe in an old woman, it is not to bee helped. If the paſſie of the ligaments thereof have occaſioned the falling, it ſcarce admits of cure, but if it fall downe by meanes of putrefaction, it cannot poſſibly be cured. If a great quantity thereof hang out betweene the thighes, it can hardly be cured; but it is cor- rupted by taking the ayre, and by the falling downe of the urine and filth, and by the motions of the thighs in going it is ulcerated, and ſo putrefies.

A hiſtory.

I remember that once I cured a young woman who had her wombe hanging out at her privie parts as big as an egge, and I did ſo well perſorme and perfect the cure thereof, that afterwards ſhe conceived, and bare children many times, and her womb never fell downe.

CHAP. XLI.

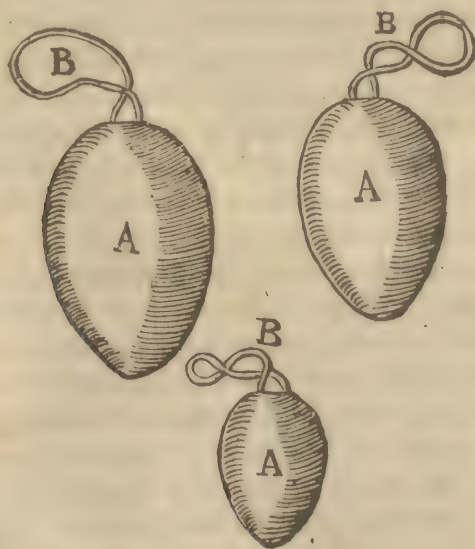
The cure of the falling downe of the Wombe.

BY this word, falling downe of the wombe, we understand every motion of the womb out of its place or seat: therefore if the wombe ascend upwards, wee must use the same medicines as in the strangulation of the wombe. If it bee turned towards either side, it must bee restored and drawne backe to its right place, by applying and using cupping glasses. But if it descend and fall downe into its owne neck, but yet not in great quantity, the woman must be placed so that her buttockes may be very high, and her legs acrosse; then cupping glasses must bee applied to her navell and *Hypogastrium*, and when the wombe is so brought into its place, injections that binde and dry strongly must bee injected into the necke of the wombe, stinking fumigations must bee used unto the privie parts, and sweetthings used to the mouth and nose. But if the wombe hang downe in great quantity betweene the thighs, it must be cured by placing the woman after another sort, and by using other kinde of medicines. First of all shee must bee so layed on her backe, her buttockes and thighs so lifted up, and her legges so drawne backe as when the childe or secundine are to bee taken or drawne from her; then the necke of the wombe, and whatsoever hangerh out thereat, must be anointed with oile of lillies, fresh butter, capons grease, and such like, then it must be thrust gently with the fingers up into its place, the sick or pained woman in the mean time helping or furthering the endeavour by drawing in of her breath as if she did suppe, drawing up as it were that which is fallen downe.

Remedies for
the ascension of
the wombe.

For the falling
downe of the
wombe, properly
so called.

After that the wombe is restored unto its place, whatsoever is filled with the ointment must be wiped with a soft and cleane cloth, lest that by the slipperinesse thereof the wombe should fall downe againe; the genitalls must bee fomented with an astringent decoction, made with pomegranate pills, cypresse nuts, galles, roach alome, horse-taile, sumach, berberies, boiled in the water wherein Smithes quench their irons; of these materialls make a powder, wherewith let those places be sprinkled: let a pessary of a competent bignesse be put in at the necke of the wombe, but let it bee eight or nine fingers in length, according to the proportion of the grieved patients body. Let them bee made either with latin, or of corke covered with waxe, of an ovall forme, having a thred at one end, whereby they may bee drawne backe againe as need requires.

The formes of ovall pessaries.

A. sheweth the body of the Pessary.

B. sheweth the thread wherewith it must be tyed to the thigh.

When

A discussing &
heating fomen-
tation.

How vom'ing
is profitable to
the falling down
of the wombe.

The cutting a-
way of the
womb when it is
putrefyed.

Lib. 6.

Epist. 39. lib. 2.
Epist. in d.

Tract. de mirand.
morbor. caus.

A history.

When all this is done, let the sicke woman keep her selfe quiet in her bed, with her buttocks lying very high, and her legs acrosse, for the space of eight or ten daies: in the meane while the application of cupping glasses will stay the wombe in the right place and seat after it is restored thereunto: but if shee hath taken any hurt by cold aire, let the privie parts be fomented with a discussing and heating fomentation, on this wise. *Rx. fol. alth. salv. lavend. rorismar. artemis. flor. chamæm. melilot. an. mß. sem. anis. fænugr. an. ʒ i.* let them bee all well boyled in water and wine, and makethereof a decoction for your use. Give her also glysters, that when the guts are emptied of the excrements, the womb may the better be received into the voyd and empty capacity of the belly: for this reason the bladder is also to be emptied, for otherwise it were dangerous lest that the wombe lying betweene them both being full, should be kept down and cannot be put up into its owne proper place by reason therof. Also vomiting is supposed to be a singular remedy to draw up the womb that is fallen down: furthermore also it purgeth out the phlegme which did moisten and relaxe the ligaments of the wombe; for as the wombe in the time of copulation at the beginning of the conception is moved downwards to meet the seed, so the stomacke, even of its owne accord, is lifted upwards when it is provoked by the injury of any thing that is contrary unto it, to cast it out with greater violence; but when it is so raised up, it drawes up together therewith the *peritonaum*, the wombe, and also the bodie or parts annexed unto it. If it cannot bee cured or restored unto its place by these prescribed remedies, and that it be ulcerated and so putrefyed that it cannot be restored unto his place againe, we are commanded by the precepts of art to cut it away, and then to cure the womb according to art, but first it should be tyed, and as much as is necessary must bee cut off, and the rest seared with a cautery. There are some women that have had almost all their wombe cut off, without any danger of their life, as *Paulus* testifieth.

John Langius Phytician to the Count *Palatine*, writeth that *Carpus* the Chirurgicalian tooke out the wombe of a woman of *Bononia*, he being present, and yet the woman lived and was very well after it. *Antonius Benivenius* Phytician of *Florence*, writeth that hee was called by *Ugolius* the Phytician to the cure of a woman whose wombe was corrupted and fell away from her by peeces, and yet shee lived ten yceres after it.

There was a certaine woman, being sound of body, of good repute, and about the age of thirty yeers, in whom shortly after she had been married the second time, which was in *Anno 1571*. having no childe by her first husband, the lawfull signes of a right conception did appear: yet in proceffe of time there arose about the lower part of her privities the sense or feeling of a waight or heavinesse, being so troublesome unto her by reason that it was painefull, and also for that it stopped her urine, that she was constrained to disclose her mischance to *Christopher Mombey* a Chirurgicalian her neighbour dwelling in the suburbs of *S. Germans*; who having seen the tumour, or swelling in her groine, asswaged the paine with mollifying and anodyne fomentations and cataplasmes; but presently after he had done this, hee found on the inner side of the lip of the orifice of the necke of the wombe, an apostume rotten & running as if it had bin out of an abscesse newly broken, with sanious matter, somewhat red, yellow, & pale, running out a long time. Yet for all this the feeling of the heaviness or waight was nothing diminished, but did rather encrease daily, so that from the yeere of our Lord 1573. she could not turne herselfe being in bed on this or that side, unlesse she layed her hand on her belly to beare and ease her selfe of the waight, and also she said when she turned her self, she seemed to feelee a thing like unto a bowle to rowle in her body unto the side whereunto she turned her selfe, neither could shee goe to stoole, or avoyd her excrements standing or sitting, unlesse shee lifted up that waight with her hands towards her stomacke or midriffe: when shee was about to go she could scarce set forwards her feet, as if there had something hanged between her thighes, that did hinder her going. At certaine seasons that rotten apostume would open, or unclothe of it selfe, and flow or run with its wonted sanious matter, but then she was grievously vexed with paine of the head, and all her members, frowning, loathing, vomiting, and almost choking, so that by the perswasion

on of a foolish woman she was induced and contented to take *Antimonium*; the working and strength thereof was so great and violent, that after many vomits, with many frettings of the guts and watry dejections or stooles, she thought her fundament fell downe; but being certified by a woman that was a familiar friend of hers, unto whom she shewed her selfe, that there was nothing fallen downe at or from her fundament, but it was from her wombe, shee called, in the yeere of our Lord 1575. Chirurgians, as my selfe, *James Guillemean*, and *Antony Vieux*, that we might helpe her in this extremity.

Antimonium taken in a potion doth cause the wombe to fall downe.

When we had diligently and with good consideration weighed the whole estate of her disease, wee agreed with one consent, that that which was fallen down should bee cut away, because that by the blacke colour, stinking, and other such signes it gave a manifest testimony of a putrefied and corrupted thing. Therefore for two daies wee drew out the body by little and little, and piece-meale, which seemed unto the Physicians that wee had called, as *Alexius*, *Gaudinus*, *Feureus*, and *Violaneus*, and also to our selves, to be the body of the wombe, which thing we proved to bee so, because one of the testicles came out whole, and also a thicke membrane or skin, being the relick of the *mola*, which being suppurated, and the abscessie broken, came out by little and little in matter; after that all this body was so drawne away, the sicke woman began to waxe better and better, yet notwithstanding for the space of nine dayes before it was taken away, she voided nothing by siege, and her urine also was stopped for the space of foure daies.

The signes of the substance of the wombe drawne out.

After this all things became as they were before, and shee lived in good health three moneths after, and then died of a Pleurisie that came on her very suddenly, and I having opened her body, observing and marking every thing very diligently, could not finde the wombe at all, but instead thereof there was a certaine hard and callous body, which nature, who is never idle, had framed in stead thereof to supply the want thereof, or to fill the hollownesse of the belly.

CHAP. XLII.

Of the tunicle or membrane called Hymen.



N some virgins or maidens in the orifice of the neck of the womb there is found a certaine tunicle or membrane called of ancient writers *Hymen*, which prohibiteth the copulation of a man, and causeth a woman to be barren; this tunicle is supposed by many, and they not of the common sort onely, but also learned Physicians, to be, as it were, the enclosure of the virginity or maidenhead. But I could never finde it in any, seeking of all ages from three to twelve, of all that I had under my hands in the Hospitall of *Paris*.

Whether there be a membrane called *Hymen*.

Yet once I saw it in a virgin of seaventeene yeeres, whom her mother had contracted to a man, and she knew neverthelesse there was something in her privie parts that hindered her from bearing of children, who desired me to see her; and I found a certaine very thin nervous membrane a little beneath the *nympha*, neere unto the orifice of the neck of the wombe; in the midst there was a very little hole whereout the termes might flow: I seeing the thickenesse thereof, cut it in sunder with my fizers, and told her mother what she should doe afterwards: and truly shee married shortly after and bore children. *Realdus Columbus* is of my opinion, and saith that this is seene very seldome, for these are his words: under the *nympha* in many, but not in all virgins, there is another membrane, which when it is present (which is but seldome) it stoppeth, so that the yard cannot be put into the orifice of the wombe; for it is very thicke above towards the bladder, it hath an hole by which the courtes flow out. And hee also addeth that he observed it in two young virgins, and in one elder maide.

A history.

Lib. II. cap. 16.

Avicen writeth that in virgins in the necke of the wombe there are tunicles composed of veines and ligaments very little, rising from each part of the necke thereof,

Lib. 3. sent. 27. *crast. 1. cap. 3.*

Kkkk

which

which at the first time of copulation are wont to bee broken, and the blood to runne out. *Almanſor* writeth that in virgins, the paſſage or necke of the wombe is very wrinkled, or narrow and ſtraight, and thoſe wrinkles to be woaven or ſtayed together with many little veines and arteries, which are broken at the firſt time of copulation.

The trifles of
midwives about
the membrane
called *Hymen*.

Theſe are the judgements of Phyſicians of this membrane: Midwives will certainly affirme that they know a virgin from one that is deſloured, by the breach or ſoundneſſe of that membrane. But by their report too credulous Judges are ſoone brought to commit an errour. For that Midwives can ſpeake nothing certainly of this membrane, may bee proved by this, becauſe that one ſaith that the ſituation thereof is in the very entrance of the privie parts, others ſay it is in the miſt of the necke of the wombe, and others ſay it is within at the inner oriſice thereof, and ſome are of an opinion that they ſay or ſuppoſe that it cannot be ſeen or perceived before the firſt birth. But truly of a thing ſo rare, and which is contrary to nature, there cannot be any thing ſpoken for certainty. Therefore the blood that commeth out at the firſt time of copulation, comes not alwaies by the breaking of that membrane, but by the breaking and violating or renting of the little veines which are woaven and beſpread all over the ſuperficial & inward parts of the womb and neck thereof, deſcending into the wrinkles, which in thoſe that have not yet uſed the act of generation, are cloſed as if they were glewed together: although that thoſe maidens that are at their due time of marriage, feele no pain nor no flux of blood, eſpecially if the mans yard be answerable to the neck of the womb; whereby it appeares evidently how greatly the inhabitants of *Fex*, the metropolitane city of *Mauritania*, are deceived: for *Leo* the Affrican writeth that it is the cuſtome among them, that ſo ſoon as the married man and his ſpouſe are returned home to their houſe from the church where they have been married, they preſently ſhut themſelves into a chamber, and make faſt the dore, while the marriage dinner is preparing: in the mean while ſome old or grave matron ſtandeth waiting before the chamber dore, to receive a bloody linnen cloth the new married husband is to deliver her there, which when ſhe hath received, ſhe brings it into the miſt of all the company of gueſts, as a freſh ſpoile and testimony of the married wives virginity, and then for joy thereof they all fall to banqueting ſolemnely. But if through evill fortune it happeneth that in this time of copulation the ſpouſe bleedeth not in the privie parts, ſhee is reſtored againe unto her parents, which is a very great reproach unto them, and all the gueſts depart home ſad, heavie, and without dinner.

The filthy de-
ceit of bauds &
harlots.

Moreover, there are ſome, that having learned the moſt filthy and infamous arts of bawdry, prostitute common harlots to make gaine thereof, making men that are naughtily given to beleve that they are pure virgins, making them to thinke that the act of generation is very painefull and grievous unto them, as if they had never uſed it before, although they are very expert therein indeed, for they doe cauſe the necke of the wombe to be ſo wrinkled and ſhrunke together, ſo that the ſides thereof ſhall even almoſt cloſe or meet together, then they put thereinto the bladders of fiſhes, or galls of beaſts filled full of blood, and ſo deceive the ignorant and young lecher, by the fraud and deceit of their evill arts, and in the time of copulation they mixe ſighes with groanes, and womanlike cryings, and the crocodile teares, that they may ſeeme to be virgins, and never to have dealt with man before.

CHAP. XLIII.

A memorable hiſtory of the membrane called Hymen.

*Lib. de proſt.
demon. cap. 38.*



Obu Wierus writeth that there was a maid at Camburge, who in the miſt of the necke of the wombe, had a thicke and ſtrong membrane growing overthwart, ſo that when the monethly termes ſhould come out, it would not permit them, ſo that thereby the menſtruall matter was ſtopped and flowed back againe, which cauſed a great tumour and diſtention in the belly, with great torment, as if ſhe had beene in travell with child:

the

the mydwives being called, and having seene and considered all that had beene done, and did appeare, did all with one voyce affirme, that shee sustained the paines of childe-birth, although that the maide her selfe denyed that shee ever dealt with man. Therefore then this foresaid Author was called, who, when the mydwives were void of help and counsell, might helpe this wretched maid, having already had her urine stopped now three whole weeks, and perplexed with great watchings, losse of appetite, and loathing: and when hee had seene the grieved place, and marked the orifice of the neck of the wombe, he saw it stopped with a thick membrane; he knew also that that sudden breaking out of blood into the wombe and the vessels thereof, and the passage for those matters that was stopped, was the cause of her grievous and tormenting paine. And therefore hee called a Chirurgicalian presently, and willed him to divide the membrane that was in the midst, that did stop the fluxe of the blood, which being done, there came forth as much black congealed and putrefied blood as wayed some eight pounds. In three dayes after shee was well and void of all disease and paine. I have thought it good to set downe this example here, because it is worthy to be noted, and profitable to be imitated, as the like occasion shall happen.

CHAP. XLIIII.

Of the strangulation of the wombe.

He strangulation of the wombe, or that commeth from the wombe, is an interception or stopping of the liberty in breathing or taking wind, because that the wombe, swolne or puffed up by reason of the accesse of grosse vapours and humours that are contained therein, and also snatched as it were by a convulsive motion, by reason that the vessels and ligaments distended with fulnesse, are so carried upwards against the midriffe and parts of the breast, that it maketh the breath to bee short, and often as if a thing lay upon the breast and pressed it.

What is the strangulation of the wombe.

Moreover, the wombe swelleth, because there is contained or inclosed in it a certaine substance, caused by the defluxion either of the seed or flowers, or of the wombe or whites, or of some other humour, tumour, abscesse, rotten apostume, or some ill juice, putrefying, or getting or engendering an ill quality, and resolved into grosse vapours. These, as they affect sundry or divers places, inferre divers and sundry accidents, as rumbling and noyse in the belly, if it be in the guts, desire to vomit, after (with seldome vomiting) commeth wearinesse and loathing of meat, if it trouble the stomach. Choaking with strangulation, if it assaile the breast and throate; swelling, if it vex the heart; madnesse, or else that which is contrary thereto, sound sleep or drousesse, if it grieve the brain: all which oftentimes prove as maligne as the biting of a mad dogge, or equall the stinging or bitings of venemous beasts.

Why the wombe swelleth.

The accidents that come of the strangling of the wombe.

It hath been observed, that more grievous symptomes have proceeded from the corruption of the seede, than of the menstruall blood. For by how much every thing is more perfect and noble, while it is conteyned within the bounds of the integrity of its owne nature, by so much it is the more grievous and perillous, when by corruption it hath once transgressed the lawes thereof. But this kind of accident doth very seldome grieve those women which have their menstruall fluxe well and orderly, and doe use copulation familiarly; but very often those women that have not their menstruall fluxe as they should, and do want, and are destitute of husbands, especially if they be great eaters, and lead a solitary life. When the vessels and ligaments of the wombe are swollen and distended as wee said before, so much as is added to their latitude or breadth, so much is wanting in their length: and therefore it hapneth that the wombe, being removed out of its seate, doth one while fall to the right side towards the liver, sometimes to the left side towards the milt, sometimes upwards unto the midriffe and stomacke, sometimes downewards, and so forwards unto the bladder, whereof commeth an Ischury and strangury; or backwards, where-

Why the strangulation that commeth of the corruption of the seed is more dangerous than that that comes of the corruption of the blood.

The cause of the divers turning of the wombe into divers parts of the body.

of commeth oppression of the straight gut, and suppression of the excrements, and the *Tenesmus*.

But although wee acknowledge the wombe to decline to those parts which wee named, yet it is not by accident onely, as when it is drawne by the proper and common ligaments and bands, when they are contracted or made shorter, being distended with fulnesse, but also of its selfe, as when it is forced or provoked through the griefe of something contrary to nature that is contained therein: it wandreth sometimes unto one side, and sometimes unto another part with a plaine and evident naturall motion, like unto the stomack which imbraceth any thing that is gentle and milde, but avoydeth any thing that is offensive and hurtfull; yet we deny that so great accidents may bee stirred up by the falling of it alone unto this or that side, for then it might happen, that women that are great with childe, whose wombes are so distended by reason that the childe is great, that it doth presse the midriffe, might be troubled with a strangulation like unto this; but much rather by a venemous humour breathing out a maligne and grosse vapour, not onely by the veines and arteries, but also by the pores that are invisible, which pollutes the faculties of the parts which it toucheth with its venemous malignity & infection, and intercepts the functions thereof. Neither doth the variety of the parts receiving only, but also of the matter received, cause variety of accidents.

The wombe is not so greatly moved by an accident, but by it selfe.

Whereof come such divers accidents of strangulation of the wombe.

The cause of sleepiness in the strangulation of the wombe.

The cause of a droulie madness.

A history.

The ascension of the wombe is to be distinguished from the strangulation.

For, some accidents come by suppression of the termes, others come by corruption of the seede, but if the matter bee cold, it bringeth a drousinesse, being lifted up unto the braine, whereby the woman sinketh downe as if shee were astonished, and lyeth without motion, and sense or feeling, and the beating of the arteries, and the breathing are so small, that sometimes it is thought they are not at all, but that the woman is altogether dead. If it be more grosse, it interreth a convulsion; if it participate of the nature of a grosse melancholick humour, it bringeth such heavinesse, fear, and sorrowfulnesse, that the party that is vexed therewith shall thinke that shee shall die presently, and cannot be brought out of this minde by any meanes or reason: if of a cholerick humour, it causeth the madnesse called *furor uterinus*, and such a pralling, that they speake all things that are to be concealed; and a giddinesse of the head, by reason that the animal spirit is suddenly shaken by the admixtion of a putrefied vapour and hot spirit: but nothing is more admirable, than that this disease taketh the patient sometimes with laughing, and sometimes with weeping, for some at the first will weepe and then laugh in the same disease and state thereof.

But it exceedeth all admiration which *Hollerius* writeth usually happened to two of the daughters of the Provost of Roven. For they were held with long laughter for an houre or two before the fitte, which neither for feare, admonition, nor for any other meanes they could hold; and their parents chid them, and asked them wherefore they did so, they answered, that they were not able to stay their laughter. The ascension of the wombe is diligently to bee distinguished from the strangulation thereof; for the accidents of the ascension and of the strangulation are not one, but the woman is onely oppressed with a certaine paine of the heart; difficulty of breathing, or swooning, but yet without feare, without raving or idle talking, or any other greater accident.

Therefore oftentimes contrary causes inferre the ascension: that is, overmuch drynesse of the wombe, labouring through the defect of moysture, whereby it is forced after too violent and immoderate evacuations of the flowers, and in childbed, and such like, and laborious and painefull travell in child-birth, through which occasion it waxeth hot, contrary to nature, and withereth and turneth it selfe with a certaine violence unto the parts adjoyning, that is to say, unto the liver, stomacke and midriffe: if happely it may draw some moysture therehence unto it. I omit that the wombe may be brought unto its place upwards by often smelling to aromatick things, yet in the meane while it infers not the strangulation that wee described before.

CHAP. XLV.

The signes of imminent strangulation of the wombe.

BEfore that these forenamed accidents come, the woman thinks that a certaine painefull thing ariseth from her wombe unto the orifice of the stomacke and heart, and shee thinketh her selfe to bee oppressed and choaked, shee complaineth her selfe to bee in great paine, and that a certaine lumpe or heauey thing climes up from the lower parts unto her throat, and stoppeth her winde, her heart burneth and panteth. And in many the wombe and vessels of the wombe so swell, that they cannot stand upright on their legs, but are constrained to lye downe flat on their bellies, that they may bee the lesse grieved with the paine, and to presse that downe strongly with their hands, that seemeth to arise upwards, although that not the wombe it selfe, but the vapour ascendeth from the wombe, as wee said before: but when the fite is at hand, their faces are pale on a sudden, their understanding is darkened, they become slow and weak in the legges, with unablensse to stand. Hereof commeth sound sleepe, foolish talking, interception of the senses, and breathe as if they were dead, losse of speech, the contraction of their legs, and the like.

The wombe it selfe doth not so well make the ascension as the vapour thereof.

CHAP. XLVI.

How to know whether the woman be dead in the strangulation of the wombe or not.

HAve thought it meet (because many women not onely in ancient times, but in our owne and our fathers memory have beene so taken with this kind of symptome, that they have beene supposed and layd out for dead, although truly they were alive :) to set downe the signes in such a case which do argue life and death. Therefore first of all it may be proved, whether she be alive or dead, by laying or holding a cleere and smooth looking-glasse before her mouth and nostrils. For, if she breathe, although it be never so obscurely, the thin vapour that commeth out will staine or make the glasse duskie. Also a fine downish feather taken from under the wing of any bird, or else a fine floske being held before the mouth, will by the trembling or shaking motion thereof, shew that there is some breath, and therefore life remaining in the body. But you may prove most certainly whether there be any sparke of life remaining in the body, by blowing some sneezing powders of pellitory of Spaine, & ellebore into the nostrils. But though there no breath appeare, yet must you not judge the woman for dead, for the small vitall heat, by which, being drawn into the heart, she yet liveth, is contented with transpiration onely, and requires not much attraction, which is performed by the contraction & dilatation of the breast and lungs unto the preservation of its selfe. For so flies, gnats, pismires and such like, because they are of a cold temperament, live unmoveably inclosed in the caves of the earth, no token of breathing appearing in them, because there is a little heat left in them, which may be conserved by the office of the arteries and heart, that is to say, by perspiration, without the motion of the breast, because the greatest use of respiration is that the inward heat may be preserved by refrigeration and ventilation. Those that do not mark this, fall into that error which almost cost the life of him who in our time first gave life to anatomicall administration, that was almost decayed and neglected.

Women living taken for dead.

How women that have the suffocation of the wombe, live only by transpiration without breathing.

How flies, gnats and pismires do live all the winter without breathing.

For he being called in Spaine to open the body of a noble woman which was supposed dead through strangulation of the wombe, behold at the second impression of the incision knife, she began suddenly to come to her selfe, and by the moving of her members and body, which was supposed to be altogether dead, and with crying, to shew manifest signes that there was some life remaining in her. Which thing

A history

strooke such an admiration & horror into the hearts of all her friends that were present, that they accounted the Physician, being before of a good fame and report, as infamous, odious and detestable, so that it wanted but little but that they would have scratched out his eyes presently : wherefore hee thought there was no better way for him, if he would live safe, than to forsake the countrey. But neither could hee so also avoyde the horrible pricke and inward wound of his conscience (from whose judgment no offender can be absolved) for his inconsiderate dealing, but within few dayes after, being consumed with sorrow, he dyed, to the great losse of the common wealth, and the art of physick.

CHAP. XLVII.

How to know whether the strangulation of the wombe comes of the suppression of the flowers, or the corruption of the seed.

The signes of suffocation of the wombe coming of corrupt seed.



Here are two chiefe causes especially, as most frequently happening of the strangulation of the wombe : but when it proceedeth from the corruption of the seed, all the accidents are more grievous and violent : difficulty of breathing goes before, and shortly after comes deprivation thereof; the whole habit of the body seemeth more cold than a stone : the woman is a widow : or else hath great store or abundance of seed, and hath been used to the company of a man, by the absence whereof she was before wont to be pained with heavinesse of the head, to loath her meat, and to bee troubled with sadnesse and feare, but chiefly with melancholy. Moreover when she hath satisfied, and every way fulfilled her lust, and then presently on a sudden begins to containe her selfe. It is very likely that shee is suffocated by the suppression of the flowers, which formerly had them well and sufficiently, which formerly hath bin fed with hot, moist, and many meats, and therefore engendring much blood, which sitteth much, which is grieved with some weight and swelling in the region of the belly, with paine in the stomacke, and a desire to vomit, and with such other accidents as come by the suppression of the flowers. Those who are freed from the fit of the suffocation of the wombe, either by nature or by art, in a short time their colour commeth into their faces by little and little, and the whole body beginneth to wax strong, and the teeth, that were set and closed fast together, begin (the jawes being loosed) to open and unclothe againe, and lastly, some moisture floweth from the secret parts with a certaine tickling pleasure ; but in some women, as in those especially in whom the necke of the wombe is tickled with the mydwives finger, in stead of that moisture comes thick and grosse seed, which moisture or seed when it is fallen, the wombe being before as it were raging, is restored unto its owne proper nature and place, and by little and little all symptomes vanish away. Men by the suppression of their seede have not the like symptomes as women have, because mans seed is not so cold and moist, but far more perfect and better digested, and therefore more meet to resist putrefaction, and whiles it is brought or drawn together by little and little, it is dissipated by great and violent exercise.

The signes when it comes of the suppression of the flowers.

The signes of one recovering ofe from the suffocation of the wombe.

Why the suppression of the seed is not perilous or deadly to men.

CHAP. XLVIII.

Of the cure of the strangulation of the wombe.

The pulling of the haire of the lower parts are profitable both for this malady and for the cause of the same.

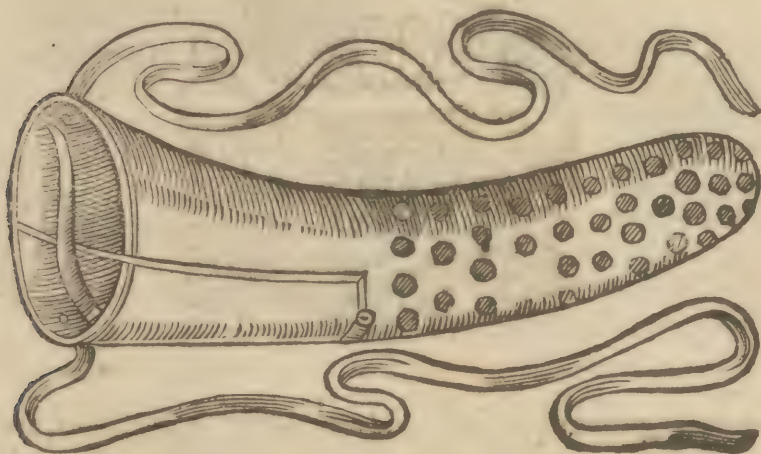


Seeing that the strangulation of the wombe is a sudden and sharp disease, it therefore requireth a present and speedy remedy, for if it be neglected it many times causeth present death. Therefore, when this malady commeth, the sick woman must presently be placed on her back, having her breast and stomack loose, and all her clothes & garments slack & loose about her, whereby she may take breath the more easily; and she must be called on by her owne name, with a loud voice in her eares, and pulled hard by the haire of the temples

temples and neck, but yet especially by the haire of the secret parts, that by provoking or causing paine in the lower parts, the patient may not onely be brought to her selfe againe, but also that the sharpe and maligne vapour ascending upwards, may be drawne downwards: the legs and armes must bee bound and tied with painefull ligatures, all the body must bee rubbed over with rough linnen clothes besprinkled with salt and vinegar, untill it be very sore and red, and let this pessary following be put into the wombe. *℞. succi mercurial. artemis. an. ʒ ii. in quibus dissolve pul. bened. ʒ iii. pul. radic. enula camp. galang. minor. an. ʒ i.* make thereof a pessary. Then let the soales of her feet bee anoynted with oyle of bayes, or with some such like oyle, let a great cupping-glasse with a great flame be applyed to the belly below the navell, to the inner part of the thigh, and to the groin, whereby both the matter that climes upwards, and also the womb it self running the same way, may be brought downwards or drawn back. There may be made a fumigation of spices to be received up into the wombe, which, that it may be the easier done, the wombe may be held open by putting in this instrument here described into the neck thereof. Let it be made of gold, silver or latin into the forme of a pessary; at the one end thereof, that is to say, that end which goeth up into the necke of the wombe, let there be made many holes on each side, but at the lower end let it be made with a spring, that it may open and shut as you wil have it. Also it must have two laces or bands by which it must be made fast unto a swathe or girdle tyed about the patients belly.

A Pessary.

The forme of a Pessary to be put into the neck of the wombe to hold it open.



The

The description of a vessell made with a funnell or pipe
for to fumigate the wombe.



The matter of
sweet fumiga-
tions.

By what power
sweet fumiga-
tions do restore
the womb unto
its owne nature
and place.
Stinking smels
to be applied to
the nostrils.

The matter and ingredients of sweet and aromaticke fumigations, are cinnamon, callam. aromat. lig. aloes, ladanum, benzoin, thyme, pepper, cloves, lavender, calaminth, mugwort, penniroyall, *alepta moschat*. nutmegs, muske, mosse, amber, squinant, and such like, which for their sweet smell and sympathy, allure or entice the wombe downwards, by their heat consume and digest the thicke vapours, and putrefied ill juice. Contrariwise, let the nostrils bee perfumed with foetide and ranke smels, and let these be made with *gum. galbanum*, *sagapenum*, *ammoniacum*, *assa fœtida*, *bitumen*, oyle of Jeat, snuffe of a tallow candle when it is blowne out, with the fume of birds feathers, especially of Partridges and Woodcocks, of mans haire or goats haire, of old leather, of horse hooves, and such like things burned, whose noysome or offensive savour the wombe avoyding, doth returne unto its owne place or seate againe.

Avicens secret
for suffocation
of the wombe.

Moreover it shall be very necessary to procure vomit by thrusting a goose feather downe into the throate, or else the haire of the patients owne head. Shortly after shee must use a potion of fiftene graines of blacke pepper bruised and dissolved in *hydromel*, or water and hony mixed together, or in some strong wine, which remedy *Avicen* holdeth for a secret.

Castoreum drun-
ken.

Also in stead thereof three houres before meat ʒ℥. of treacle dissolved in ʒi. of the water of wormewood may be given her : Also it is thought that one drop of the oyle of Jeat dropped on the tongue, is a very profitable remedy. There bee some that allow a potion of halfe a dram of *Castoreum* dissolved in white wine, or in the broth of a capon : also it is profitable not onely to give her treacle to drinke, but also

so

so to inject it into the wombe, being first dissolved in *aqua vite*, and in the meane time to drop two drops of oyle of sage, or some such chymicall oyle into the eares. Expressions in- to the wombe. If shee bee drouisie or sleepey, she must be awaked or kept waking with sneezing powders of white ellebore and pellitory.

It is also requisite to inject glysters both into the fundament and secret parts, which must be made of the decoction of things that discusse winde, as of calamin^t, mugwort, lavender, pennyroyall, chamomel, melilote, and such like; and let pessaries or suppositories be made of ladanum, ginger, *gallia moschat*, treacle, mithridate, civet and muske, of the oyle of cloves, anniseeds, sage, rosemary, and such like, chymically drawne; this following is a convenient description of a glyster. *R. radic. enu- le, camp. Ireos, ebuli, aristoloch. an. 3 i. fol. absynth. artemesia, matricar. puleg. origani, an. m. i. baccarum lauri, juniperi & sambuc. an. p. i. sem. amios, cymini, ruta an. 3 ii. florum stachados, rorismarin. salvia, centaur. minor. an. p. ii. fiat decoctio, cape colatura lb. i. in qua dissolve mellis anthosati, sacch. rubr. & bened. an. 3 i. diacharth. 3 ii. olei aneth. nard. an. 3 i. B.* make thereof a glyster, and apply this plaster following to the belly. *R. mass. empl. oxycrocei, & melilot. an. 3 iii. olei nard.* as much as shall suffice to make it conveniently soft, make thereof a plaster, and spread it on leather, and apply it to the region of the belly when the fitte is ended: if she be married, let her forthwith use copulation, and bee strongly encountered by her husband, for there is no remedy more present than this. The matter of pessaries. A glyster scattering grosse vapours. A quick, certain & a pleasant remedy for the suffocation of the wombe. Tickling of the neck of the wombe.

Let the mydwife annoint her fingers with *oleum nardinum* or *moschetalinum*, or of cloves, or else of spike mixed with muske, ambergreese, civet, and other sweet powders, and with these let her rub or tickle the top of the necke of the wombe which toucheth the inner orifice; but her secret parts must first be warmed by the applying of warme linnen clothes, for so at length the venemous matter contained in the wombe, shall bee dissolved and flow out, and the maligne, sharpe and flatulent vapours, whereby the wombe is driven as it were into a fury or rage, shall bee resolved and dissipated, and so when the conjunct matter of the disease is scattered and wasted, the wombe, and also the woman shall bee restored unto themselves againe. Some hold it for a secret to rub the navell with the juice of garlicke boyled and mixed with aloes.

CHAP. XLIX.

Of womens monethly fluxe or courses.

Usuallly they call the fluxe of bloud, that issueth from the secret parts of women, monethly flowers or courses, because it happeneth to them every month so long as they are in health. There bee some which call them termes, because they returne at their usuall time. Many of the French men call it *sepmaines*, because in such as sit much, and are given to plentifull feeding, it endureth almost for the space of seven dayes. Some call them purgations, because that by this fluxe all a womans body is purged of superfluous humours. There bee some also that call those fluxes the flowers, because that as in plants the flower buddeth out before the fruits, so in women kinde this flux goeth before the issue, or the conception thereof. The reason of the names of the monthly flux of women.

For the courses flow not before a woman bee able to conceive: for how should the seede being cast into the wombe have his nourishment and encrease, and how should the child have his nourishment when it is formed of the seed, if this necessary humour were wanting in the wombe? yet it may bee some women may conceive without this fluxe of the courses: but that is in such as have so much of the humour gathered together, as is wont to remaine in those which are purged, although it bee not so great a quantity that it may flow out, as it is recorded by *Aristotle*. But as it is in some very great, and in some very little, so it is in some seldome, and in some very often. What women do conceive this flux not appearing at all.

There are some that are purged twice, and some thrice in a moneth, but it is altogether

What women
have this men-
struall flux of
ten, abundantly
& for a longer
space than o-
thers.

together in those who have a great liver, large veines, and are filled and fed with many and greatly nourishing meats, which sit idely at home all day, which having slept all night, doe notwithstanding lye in bed sleeping a great part of the day also, which live in a hot, moyst, rainie and southerly ayre, which use warme bathes of sweet waters and gentle frictions, which use and are greatly delighted with carnall copulation : in these and such like women the courses flow more frequently and abundantly.

What women
have thi fluxe
more seldome,
lesse, and a far
more short time
than others.

But contrariwise, in those that have small and obscure veines, in those that have their bodies more furnished and bigge either with flesh or with fat, are more seldome purged, and also more sparingly, because that the superfluous quantity of blood useth to goe into the habit of the body. Also tender, delicate and faire women are lesse purged than those that are browne and endued with a more compact flesh, because that by the rarity of their bodies, they suffer a greater wasting or dissipation of their substance by transpiration. Moreover, they are not so greatly purged with this kind of purgation, which have some other solemne or accustomed evacuation in any other place of their body, as by the nose or hemorrhoids.

Why young wo-
men are purged
in the new of
the Moone.

And as concerning their age, old women are purged when the Moone is old, and young women when the Moone is new, as it is thought. I thinke the cause thereof is, for that the Moone ruleth moyst bodies, for by the variable motion thereof the Sea floweth and ebbereth, and bones, marrow and plants abound with their genitall humour.

Why old wo-
men are purged
in the wane of
the Moone.

Therefore young people which have much blood, and more fluxible, and their bodies more fluxible, are loone moved unto a fluxe, although it bee even in the first quarter of the Moones rising or increasing : but the humours of old women, because they wax stiffe as it were with cold, & are not so abundant, and have more dense bodies and straighter vessels, are not so apt to a fluxe, nor do they so easily flow, except it bee in the full of the Moon, or else in the decrease ; that is to say, because the blood that is gathered in the full of the Moon falls from the body even of its own weight, for that by reason of the decreasing or wane of the Moone this time of the month is more cold and moyst.

CHAP. L.

The causes of the monethly flux or courses.

The materiall
cause of the
monthly fluxe.



Because a woman is more cold, and therefore hath the digestive faculty more weake, it commeth to passe, that shee requireth and desireth more meate or foode than shee can digest or concoct : And because that superfluous humour that remaineth is not digested by exercise, nor by the efficacy of strong and lively heat, therefore by the providence or benefit of nature it floweth out by the veines of the wombe, by the power of the expulsive faculty, at its owne certaine and prefixed season or time. But then especially it beginneth to flow, and a certaine crude portion of blood to bee expelled, being hurtfull and maligne otherwise in no quality, when nature hath laid her principall foundations of the encrease of the body, so that in greatnesse of the body, she hath come as it were in a manner to the highest toppe, that is to say, from the thirteenth to the fiftieth year of our age.

When the
monthly flux
begins to flow.

The final cause.

A woman ex-
ceeds a man in
quantity of
blood.

Moreover, the childe cannot bee formed in the wombe, nor have his nutriment or encrease without this fluxe : therefore this is another finall cause of the monethly flux. Many are perswaded that women do farre more abound with blood than men, considering how great an abundance of blood they cast forth of their secret parts every moneth, from the thirteenth to the fiftieth year of their age : how much women great with childe, of whom also many are menstruall, yeelde unto the nutriment and encrease of the childe in their wombes, and how much Physicians take from women that are with childe by opening of a veine, which otherwise would bee delivered before their naturall and prefixed time ; how great a quantity thereof they

they avoid in the birth of their children, and for ten or twelve daies after, and how great a quantity of milk they spend for the nourishment of the child when they give sucke, which milke is none other thing than blood made white by the power of the kernels that are in the dugges, which doth suffice to nourish the childe, be he great or little; yet notwithstanding many nurses in the meane while are menstruall: and as that may be true, so certainly this is true, that one dramme (that I may so speake) of a mans blood, is of more efficacy to nourish and encrease, than two pounds of womans blood, because it is farre more perfect, more concocted, wrought, and better replenished with abundance of spirits: whereby it commeth to passe that a man endued with a more strong heat, doth more easily convert what meat soever he eateth unto the nourishment & substance of his body; & if that any superfluity remains, he doth easily digest and scatter it by insensible transpiration. But a woman being more cold than a man, because shee taketh more than shee can concoct, doth gather together more humours, which because shee cannot disperse, by reason of the unperfectnesse and weakenesse of her heat, it is necessary that shee should suffer, and have her monethly purgation, especially when shee groweth unto some bignesse; but there is no such need in a man.

A man exceedeth a woman in the quality of his blood.

A man is more hot than a woman, and therefore not menstruall.

CHAP. LI.

The causes of the suppression of the courses or menstruall fluxe.



He courses are suppressed or stopped by many causes, as by sharp, vehement, and long diseases, by feare, sorrow, hunger, immoderate labours, watchings, fluxes of the belly, great bleeding, hemorrhoides, fluxes of blood at the mouth, and evacuations in any other part of the body whatsoever, often opening of a veine, great sweats, ulcers flowing much and long, scabbiness of the whole skinne, immoderate grossenesse and clamminesse of the blood, and

by eating of raw fruites, and drinking of cold water, by sluggishnesse and thicknesse of the vessels, and also the obstruction of them by the defaults and diseases of the wombe, by distemperature, an abscesse, an ulcer, by the obstruction of the inner orifice thereof, by the growing of a Callus, caruncle, cicatrice of a wound or ulcer, or membrane growing there, by injecting of astringent things into the necke of the wombe, which place many women endeavour foolishly to make narrow: I speake nothing of age, greatnesse with child, & nursing of children, because these causes are not besides nature, neither doe they require the helpe of the Physitian.

Many women, when their flowers or tearmes be stopped, degenerate after a manner into a certaine manly nature, whence they are called *Viragines*, that is to say, stout, or manly women; therefore their voice is more loud and bigge, like unto a mans, and they become bearded.

In the city *Abdera* (saith *Hippocrates*) *Phaethusa* the wife of *Fytheas* at the first did beare children and was fruitfull, but when her husband was exiled, her flowers were stopped for a long time: but when these things happened, her body became manlike and rough, and had a beard, and her voice was great and shrill. The very same thing happened to *Namysia* the wife of *Gorgippus* in *Thasus*. Those virgins that from the beginning have not their monethly fluxe, and yet neverthelesse enjoy their perfect health, they must necessarily be hot and dry, or rather of a manly heat and drynesse, that they may so disperse and dissipate by transpiration, as men doe, the excrements that are gathered, but verily all such are barren.

The foolish endeavour of making the orifice of the wombe narrow, is rewarded with the discommodity of stopping of the flowers. What women are called *viragines*. Lib. 6. epidem. sect. 7.

The women that are called *viragines* are barren.

CHAP. LII.

What accidents follow the suppression or stopping of the monthly fluxe or flowers.



Why the strangury, or bloodiness of the urine followeth the suppression of the flowers.

Histories of such as were purged of their menstruell flux by the nose and dugges.

When the flowers or monethly fluxe are stopped, diseases affect the womb, and from thence passe into all the whole body. For thereof cometh suffocation of the womb, head ache, swooning, beating of the heart, and swelling of the breasts and secret parts, inflammation of the wombe, an abscesse, ulcer, cancer, a feaver, nauseousnesse, vomitings, difficult and slow concoction, the drop sic, strangury, the full wombe pressing upon the orifice of the bladder, blacke and bloody urine, by reason that portion of the blood sweateth out into the bladder. In many women the stopped matter of the monethly fluxe is excluded by vomiting, urine, and the hoemorrhoides, in some it groweth into *varices*. In my wife, when shee was a maide, the menstruell matter was excluded and purged by the nostrills. The wife of *Peter Feure of Casteaudun*, was purged of her menstruell matter by the dugges every moneth, and in such abundance, that scarce three or foure cloaths were able to dry it and sucke it up.

In those that have not the fluxe monethly to evacuate this plenitude by some part or place of the body, there often followes difficulty of breathing, melancholy, madness, the gout, an ill disposition of the whole body, dissolution of the strength of the whole body, want of appetite, a consumption, the falling sicknesse, an apoplexie.

Those whose blood is laudable, yet not so abundant, doe receive no other discomfort by the suppression of the flowers, unlesse it be that the wombe burnes or itcheth with the desire of copulation, by reason that the wombe is distended with hot and itching blood, especially if they lead a sedentary life. Those women that have beene accustomed to beare children, are not so grieved and evill at ease when their flowers are stopped by any chance contrary to nature, as those women which did never conceive, because they have beene used to be filled, and the vessels by reason of their customary repletion and distention, are more large and capacious: when the courses flow, the appetite is partly dejected, for that nature, being then wholly applied to expulsion, cannot thoroughly concoct or digest, the face waxeth pale, and without its lively colour, because that the heat with the spirits, go from without inwards, so to helpe and aide the expulsive faculty.

To what women the suppression of the monethly flux is most grievous

CHAP. LIII.

Of provoking the flowers or courses.



Why the veine called *basilica* in the arme must be opened before the vein *saphena* in the foot. Horse-leeches to be applied to the neck of the wombe.

He suppression of the flowers is a plethorick disease, and therefore must be cured by evacuation, which must be done by opening the veine called *Saphena* which is at the ankle, but first let the basilike veine of the arme be opened, especially if the body bee plethoricke, lest that there should a greater attraction be made into the wombe, and by such attraction or flowing in, there should come a greater obstruction. When the veins of the wombe are distended with so great a swelling that they may be seen, it will be very profitable to apply horse-leeches to the necke thereof: pessaries for women may be used; but fumigations of aromaticke things are more meet for maides, because they are bashfull and shamefaced. Unguents, liniments, emplaisters, cataplasmes, that serve for that matter, are to bee prescribed and applied to the secret parts, ligatures and frictions of the thighes and legges are not to bee omitted, fomentations and sternutatories are to be used, and cupping glasses are to bee applied to the groines, walking, dancing, riding, often and wanton copulation with her husband, and such like exercises, provoke

voke the flowers. Of plants, the flowers of St. Johns wort, the rootes of fennell, and asparagus, bruscus or butchers broom, of parslley, brooke-lime, basill, balme, betony, garlicke, onions, crista marina, costmary, the rinde or barke of cassia fistula, calamint, origanum, pennyroyall, mugwort, thyme, hyslope, sage, marjoram, rosemary, horehound, rue, savine, spurge, saffron, agaricke, the flowers of elder, bay berries, the berries of Ivie, scammony, *Cantharides*, *pyrethrum* or pellitory of Spaine, *euphorbium*. The aromaticke things are *amomum*, cynamon, squinanth, nutmegs, *Lamus aromaticus*, *cyperus*, ginger, cloves, galangall, pepper, cubibes, amber, muske, spiknard, and such like; of all which let fomentations, fumigations, baths, broaths, boles, potions, pills, syrupes, apozemes, and opiates be made as the Physicians shall thinke good.

Plants that provoke the flowers

Sweet things;

The apozeme that followeth is proved to be very effectuell. *Rx. fol. & flor. dictam. an. p. ii. pimpinel. m. B. omnium capillar. an. p. i. artemis. thymi, marjor. organ. an. m. B. rad. rub. major. petroselin. fanical. an. 3 i. B. rad. paon. bistort. an. 3 B. cicerum rub. sem. paon. fanical. an. 3 B.* make thereof a decoction in a sufficient quantity of water, adding thereto cinamon 3 iii. in one pinte of the decoction dissolve (after it is strained) of the syrupe of mugwort, and of hyslope, *an. 3 ii. diarrhod. abbat. 3 i.* let it bee strained through a bagge, with 3 ii. of the kernells of dates, and let her take 3 iii. in the morning.

An apozeme to provoke the flowers.

Let pessaries bee made with *galbanum*, *ammoniacum*, and such like mollifying things, beaten into a masse in a mortar with a hot pestell, and made into the forme of a pessary, and then let them be mixed with oile of Jasmine, *euphorbium*, an oxe gall, the juice of mugwort, and other such like, wherein there is power to provoke the flowers, as with scammony in powder: let them be as bigge as ones thumb, fixe fingers long, and rowled in lawne, or some such like thinne linnen cloath; of the same things nodula's may bee made. Also pessaries may be prepared with hony boyled, adding thereto convenient powders, as of scammony, pellitory, and such like. Neither ought these to stay long in the necke of the wombe, lest they should exulcerate, and they must be pulled backe by a threed that must bee put through them, and then the orifice of the womb must be fomented with white wine of the decoction of pennyroyall or mother-wort.

But it is to be noted, that if the suppression of the flowers happeneth through the default of the stopped orifice of the womb, or by inflammation, these maladies must first bee cured before wee come unto those things that of their proper strength and vertue provoke the flowers: as for example, if such things be made and given when the wombe is enflamed, the blood being drawne into the grieved place, and the humours sharpened, and the body of the wombe heated, the inflammation will be increased. So if there be any superfluous flesh, if there be any Callus of a wound or ulcer, or if there be any membrane shutting the orifice of the wombe, and so stopping the fluxe of the flowers, they must first bee consumed and taken away before any of those things bee administred. But the oportunity of taking and applying of things, must be taken from the time wherein the sicke woman was wont to be purged before the stopping, or if she never had the flowers, in the decrease of the moone; for so we shall have custome, nature, and the externall efficient cause to helpe art. When these medicines are used, the women are not to bee put into bathes or hot houses, as many doe, except the malady proceed from the density of the vessels, and the grossenesse and clamminesse of the blood. For sweats hinder the menstruall fluxe, by diverting and turning the matter another way.

What causes of the stopping of the flowers must be cured before the disease itselfe.

The fittest time to provoke the flowers.

Why hot houses do hurt those in whom the flowers are to be provoked.

CHAP. LIIII.

The signes of the approaching of the menstruall fluxe.

What women
do love and
what women
doe loath the
act of generati-
on when the
moneths are
stopped.

With what ac-
cidents those
that are ma-
riageable and
are not married,
are troubled.

The cause of so
many accidents

When the monethly fluxe first approacheth, the dugges itch and become more swollen and hard than they were wont, the woman is more desirous of copulation, by reason of the ebullition of the provoked blood, and the acrimony of the blood that remaineth, her voice becommeth bigger, her secret parts itch, burne, swell, and waxe red. If they stay long, shee hath paine in her loynes and head, nauseousnesse and vomiting troubleth the stomacke: notwithstanding, if those matters which flow together in the wombe, either of their owne nature, or by corruption, be cold, they loath the act of generation, by reason that the wombe waxeth feeble through sluggishnesse and watery humours filling the same, and it floweth by the secret parts very softly. Those maides that are marriageable, although they have the menstruall fluxe very well, yet they are troubled with headache, nauseousnesse, and often vomiting, want of appetite, longing, an ill habite of body, difficulty of breathing, trembling of the heart, swooning, melancholy, fearfull dreames, watching, with sadnesse and heavinesse, because that the genitall parts burning & itching, they imagine the act of generation, whereby it commeth to passe that the seminall matter, either remaining in the testicles in great abundance, or else powred into the hollownesse of the womb, by the tickling of the genitalls, is corrupted, and acquireth a venemous quality, and causeth such like accidents as happens in the suffocation of the wombe.

Aph. 36. sect. 5.

Lib. 2. de subt.

The efficient
cause of the
milke is to be
noted.

Maides that live in the country are not so troubled with those diseases, because there is no such lying in wait for their maiden-heads, and also they live sparingly and hardly, and spend their time in continuall labour. You may see many maides so full of juice, that it runneth in great abundance, as if they were not menstruall, into their dugges, and is there converted into milke, which they have in as great quantity as nurses, as we read it recorded by *Hippocrates*. If a woman which is neither great with child, nor hath born children, hath milke, she wants the menstruall fluxes; whereby you may understand that that conclusion is not good which affirmeth that a woman which hath milke in her breasts, either to be delivered of childe, or to be great with childe: for *Cardanus* writeth that hee knew one *Antony Buzus* at *Genua*, who being thirty yeeres of age, had so much milk in his breasts as was sufficient to nurse a child; for the breeding and efficient cause of milke proceeds not onely from the engrafted faculty of the glandulous substance, but much rather from the action of the mans seed; for prooffe whereof you may see many men that have very much milk in their breasts, and many women that almost have no milke, unlesse they receive mans seed. Also women that are strong and lusty like unto men, which the Latines call *Viragines*, that is to say, whose seed commeth unto a manly nature, when the flowers are stopped, concoct the blood, and therefore when it wanteth passage forth, by the likenesse of the substance it is drawne into the duggs, and becommeth perfect milk: those that have the flowers plentifully and continually for the space of foure or five daies, are better purged and with more happy successe than those that have them for a longer time.

CHAP. LV.

*What accidents follow immoderate fluxes of the flowers
or courses.*



IF the menstruall flux floweth immoderately, there also followes many accidents; for the cocotion is frustrated, the appetite overthrown, then followes coldnesse throughout all the body, exolution of all the faculties, an ill habite of all the body, leanness, the drop sic, a hefticke feaver, convulsion, swooning, and often sodaine death: if any have them too exceeding immoderately,

the blood is sharpe and burning, and also stinking, the sicke woman is troubled with a continuall feaver, and her tongue will bee dry, ulcers arise in the gummies and all the whole mouth. In women the flowers doe flow by the veins and arteries which rise out of the spermatike vessels, and are ended in the bottome and sides of the wombe, but in virgins and in women great with childe, whose children are sound and healthfull, by the branches of the hypogastrick veine and artery, which are spread and dispersed over the necke of the wombe. The cause of this immoderate flux is in the quantity or quality of the blood, in both the fault is unreasonable copulation, especially with a man that hath a yard of a monstrous greatnesse, and the dissolution of the retentive faculty of the vessels: oftentimes also the flowers flow immoderately by reason of a painfull & a difficult birth of the child or the after-birth, being pulled by violence from the coryledons of the wombe, or by reason that the veins and arteries of the necke of the wombe are torne by the coming forth of the infant with great travell, and many times by the use of sharpe medicines, and exulcerating pessaries. Often times also nature avoids all the juice of the whole body critically by the wombe after a great disease, which fluxe is not rashly or suddenly to be stopped. That menstruall blood that floweth from the wombe is more grosse, blacke, and clotty, but that which commeth from the necke of the wombe is more cleere, liquid and red.

By what pores the flowers doe flow in a woman and in a maide

The causes of an unreasonable fluxe of blood.

The criticall fluxe of the flowers.

The signes of blood flowing from the womb or necke of the wombe.

CHAP. LVI.

Of stopping the immoderate flowing of the flowers or courses.



YOU must make choice of such meats and drinckes as have power to incrustate the blood, for as the flowers are provoked with meats that are hot, and of subtile parts, so they are stopped by such meates as are cooling, thickening, astringent and stipticke, as are barley waters, sodden rice, the extreme parts of beasts, as of oxen, calves, sheep, either fryed or sodden with sorrell, purslaine, plantaine, shepheards purse, sumach, the buds of brambles, berberries, and such like. It is supposed that a harts horne burned, washed, and taken in astringent water, will stoppe all immoderate fluxes; likewise *sanguis draconis*, *terra sigillata*, *bolus armenus*, *lapis hematites*, corall beaten into most subtile powder and drunke in steeld water; also pappe made with milk, wherein Steele hath often times been quenched, and the floure of wheat, barley, beanes or rice, is very effectuell for the same. Quinces, cervises, medlars, cornelian berries, or cherries may likewise be eaten at the second course, Juleps are to be used of steeld waters, with the syrupe of dry roses, pomegranates, sorrell, myrtles, quinces, or old conserves of red roses; but wine is to bee avoided: but if the strength be so extenuated that they require it, you must choose grosse and astringent wine tempered with steeld water; exercises are to be shunned, especially venereous exercises, anger is to bee avoided, a cold aire is to be chosen, which, if it be not so naturally, must bee made so by sprinkling cold things on the ground, especially if the summer or heat bee then in his full strength; sound sleeping stayes all evacuations except sweating. The opening of a

The assistance of cold things.

veins in the arme, cupping glasses fastened on the breasts, bands, and painfull frictions of the upper parts are greatly commended in this malady.

Purging.

But if you perceive that the cause of this accident lieth in a cholerick ill juice mixed with the blood, the body must bee purged with medicines that purge choler and water, as Rubarbe, Myrobalanes, Tamarinds, Sebestens, and the purging syrupe of roses.

CHAP. LVII.

Of locall medicines to bee used against the immoderate flowing of the Courses.

An unguent.

An astringent injection.

Astringent pessaries.

Also unguents are made to stay the immoderate fluxe of the tearmes, and likewise injections and pessaries. This or such like may bee the forme of an unguent. *R. ol. mastich. & myrt. an. 3 ii. nucum cupres. olibani, myrtil. an. 3 ii. succi rosar. rubr. 3 i. pulv. mastichin. 3 ii. boli armen. terra sigillat. an. 3 B. cera quantum sufficit, fiat unguentum.* An injection may be thus made. *R. aq. plantag. rosar. rubrar. bursæ pastor. centinodii, an. 16 B. corticis querni, nucum cupressi, gallar. non maturar. an. 3 ii. berberis, sumach. balaustr. atumin. roch. an. 3 i. make thereof a decoction, and inject it with a syringe blunt pointed into the wombe, lest if it should be sharpe it might hurt the sides of the necke of the wombe; also snail's beaten with their shells and applied to the navell, are very profitable. Quinces roasted under the coals, and incorporated with the powder of myrtills, and bole armecick, and put into the necke of the wombe, are marvellous effectuall for this matter. The forme of a pessary may be thus. *R. gallar. immaturar. combust. & in aceto extinctar. 3 ii. ammo. 3 B. sang. dracon. pul. rad. symbyt. sumach. mastich. succi acacia, cornu cer. ust. colophon, myrrha, scorie ferri, an. 3 i. caphar. 3 ii. mixe them, and incorporate them all together with the juice of knot-grasse, syngreen, night-shade, henbane, water lillies, plantaine, of each as much as is sufficient, and make thereof a pessary.**

Cooling things, as oxycrate, *unguentum rosatum*, and such like, are with great profit used to the region of the loines, thighes, and genitall parts: but if this immoderate flux doe come by erosion, so that the matter thereof continually exulcerateth the necke of the wombe, let the place be anointed with the milke of a shee Asse, with barley water, or binding and astringent mucelages, as of *psilium*, quinces, gumme tragacanth, arabicke, and such like.

CHAP. LVIII.

Of womens fluxes, or the Whites.

The reason of the name.

The differences

What women are apt to this fluxe.

Besides the forenamed fluxe, which by the law of nature happeneth to women monethly, there is also another called a womans fluxe, because it is onely proper and peculiar to them: this sometimes wearierh the woman with a long and continuall distillation from the wombe, or through the wombe, coming from the whole body without paine, no otherwise than when the whole superfluous filth of the body is purged by the reines or urine; sometimes it returneth at uncertaine seasons, and sometimes with pain and exulcerating the places of the wombe: it differeth from the menstruall fluxe, because that this for the space of a few dayes, as it shall seeme convenient to nature, casteth forth laudable blood, but this womans fluxe yeeldeth impure ill juice, sometimes sanious, sometimes serous and livide, otherwhiles white and thicke, like unto barley creame, proceeding from flegmaticke blood: this last kind thereof is most frequent. Therefore wee see women that are flegmaticke, and of a soft and loose habite of body, to be often troubled with this disease, and therefore they will say among themselves

selves that they have the whites. And as the matter is divers, so it will staine their smockes with a different colour. Truly if it bee perfectly red and sanguine, it is to be thought that it commeth by erosion, or the exolution of the substance of the vessels of the wombe, or of the necke thereof: therefore it commeth very seldome of blood, and not at all except the woman be either great with childe, or cease to be menstruall for some other cause; for then in stead of the monethly fluxe there floweth a certaine whayish excrement, which staineth her cloaths with the colour of water wherein flesh is washed.

Womens fluxe
commeth very
seldome of
blood.

Also it very seldome proceeds of a melancholy humour, and then for the most part it causeth a cancer in the wombe. But often times the purulent and bloody matter of an ulcer lying hidden in the wombe, deceiveth the unskillfull Chirurgian or Physitian: but it is not so hard to know these diseases one from the other; for the matter that floweth from an ulcer, because (as it is said) it is purulent, it is also lesser, grosser, stinking, and more white. But those that have ulcers in those places, especially in the necke of the wombe, cannot have copulation with a man without paine.

By what signes
an ulcer in the
wombe may be
known from the
white flowers.

CHAP. LIX.

Of the causes of the Whites.

Sometimes the cause of the whites consisteth in the proper weaknesse of the wombe, or else in the uncleannesse thereof, and sometimes by the default of the principall parts. For if the brain or the stomacke be cooled, or the liver stopped or schirrous, many crudities are engendered, which if they runne or fall downe into the wombe that is weake by nature, they cause the fluxe of the wombe, or whites: but if this fluxe be moderate and not sharpe, it keepeth the body from malignant diseases; otherwise it useth to inferre a consumption, leannesse, palenesse, and an oedematous swelling of the legges, the falling downe of the wombe, the dejection of the appetite and all the faculties, and continuall sadnesse and sorrowfulnesse; from which it is very hard to perswade the sicke woman, because that her minde and heart will bee almost broken, by reason of the shame that shee taketh because such filth floweth continually; it hindereth conception, because it either corrupteth, or driveth out the seed when it is conceived. Often times, if it stoppeth for a few moneths, the matter that stayeth there causeth an abscesse about the wombe in the body or necke thereof, and by the breaking of the abscesse there followeth rotten and cancerous ulcers, sometimes in the wombe, sometimes in the groine, and often in the hippes.

How a womans
fluxe is whole-
some.
How it causeth
diseases.

How it lettereth
the conception.

This disease is hard to be cured, not onely by reason of it selfe, as because all the whole filth and superfluous excrements of a womans body floweth downe into the womb, as it were into a sink, because it is naturally weak, hath an inferiour situation, many vessels ending therein; and last of all, because the courses are wont to come through it, as also by reason of the sicke woman, who often times had rather dye than to have that place seene, the disease knowne, or permit locall medicines to be applied thereto: for so saith *Montanus*, that on a time hee was called to a noble woman of *Italy* who was troubled with this disease, unto whom hee gave counsell to have cleansing decoctions injected into her wombe, which when shee heard, she fell into a swoone, and desired her husband never thereafter to use his counsell in any thing.

Why it is hard
to be cured.

A history.

CHAP. LX.

The cure of the Whites.

If the fluxe of a woman be red, wherein it differeth from the menstruall flux.



If the matter that floweth out in this disease bee of a red colour, it differeth from the naturall monthly fluxe in this onely, because it keeps no order or certain time in its returning. Therefore phlebotomy and other remedies which we have spoken of, as requisite for the menstruall fluxe when it floweth immoderately, is here necessary to be used. But if it bee white, or doth testifie or argue the ill

A womans flux is not suddenly to be stopped.

juice of this or that humour by any other colour, a purgation must be prescribed of such things as are proper to the humour that offends: for it is not good to stop such a flux suddenly; for it is necessary, that so the body should be purged of such filth or abundance of humours: for they that doe hasten to stop it, cause the drop sicke, by reason that this sinke of humours is turned backe into the liver; or else a cancer in the womb, because it is stayed there; or a fever, or other diseases, according to the condition of the part that receiveth it. Therefore we must not come to locall deterfives, desiccatives, restrictives, unlesse we have first used universall remedies according to art. Alom baths, baths of brimstone, and of bitumen, or iron, are convenient for the whites that come of a phlegmaticke humour; instead whereof bathes may bee made of the decoction of herbes that are hot, dry, and endued with an aromaticke power, with alome and pebbles, or flint-stones red hot throwne into the same. Let this bee the forme of a cleansing decoction and injection. *Rx. fol. absynth. agrimon. centi- nod. burf. past. an. m* B. boyle them together, and make thereof a decoction, in which dissolve *mellis rosar. ʒ ii. aloes, myrrha, salis nitri, an. ʒ i.* make thereof an injection, the woman being so placed on a pillow under her buttockes that the necke of the wombe being more high, may be wide open: when the injection is received, let the woman let her legges acrosse, and draw them up to her buttockes, and so shee may keepe that which is injected. They that endeavour to dry and bind more strongly, adde the juice of *acatta*, greene galles, the rindes of pomegranates, roch alome, romane vitrioll, and they boile them in Smiches water and red wine; pessaries may be made of the like faculty.

The signes of a putrefied ulcer in the wombe.

The virulent Gonorrhœa is like unto the fluxe of women.

If the matter that commeth forth be of an ill colour or smell, it is like that there is a rotten ulcer; therefore we ought to inject those things that have power to correct the putrefaction: among which *egyptiacum*, dissolved in lye or red wine, excelleth. There are women which when they are troubled with a virulent *Gonorrhœa*, or an involuntary fluxe of the seed, cloaking the fault with an honest name, doe untruly say that they have the whites, because that in both these diseases a great abundance of filth is voided. But the Chyrurgian may easily perceive that malady by the rottenesse of the matter that floweth out, and hee shall perswade himselfe that it will not bee cured without salivation or fluxing at the mouth, and sweats. In the meane while let him put in an instrument made like unto a pessary, and cause the sicke woman to hold it there: this instrument must have many holes in the upper end, through which the purulent matter may passe, which by staying or stopping might get a sharpnesse; as also that so the womb may breathe the more freely, and may be kept more temperate and coole by receiving the aire, by the benefit of a spring whereby this instrument, being made like unto a pessary, is opened and shut.

The forme of an instrument made like unto a pessary, whereby the wombe may bee ventilated.



- A. sheweth the end of the instrument, which must have many holes therein.
 B. sheweth the body of the instrument.
 C. sheweth the plate whereby the mouth of the instrument is opened and shut, as wide and as close as you will, for to receive the aire more freely.
 D. sheweth the spring.
 E. sheweth the laces and bands to tie about the patients body, that so the instrument may be stayed and kept fast in his place.

CHAP. LXI.

Of the haemorrhoides and warts of the necke of the wombe.



Like as in the fundament, so in the necke of the wombe there are haemorrhoides, and as it were varicous veins, often times flowing with much blood, or with a red and stinking whayish humor. Some of these by reason of their rednesse and great inequality as it were of knobs, are like unripe mulberries, and are called vulgarly *vena merales*, that is to say, the veins or haemorrhoides like unto mulberries; others are like unto grapes, and therefore are named *uvales*; other some are like unto warts, and therefore are called *vena verrucal*: some appeare & shew themselves with a great tumour, others are little and in the bottome of the necke of the wombe, others are in the side or edge thereof. *Achrochordon* is a kinde of wart with a callous bunch or knot, having a thin or slender root, and a greater head, like unto the knot of a rope, hanging by a small thread; it is called of the Arabians, *verruca botoralis*.

The differences of the haemorrhoides of the necke of the wombe.

There is also another kinde of wart, which because of his great roughnesse and inequality is called *thymus*, as resembling the flower of Thyme. All such diseases are exasperated and made more grievous by any exercise, especially by venereous acts: many times they have a certaine malignity, and an hidden virulency joyned with them, by occasion whereof they are aggravated even by touching onely, because they have their matter of a raging humour: therefore to these we may not rightly use a true, but onely the palliative cure, as they terme it: the Latines call them onely *figus*, but the French men name them with an adjunct, *St. Fiacris figges*.

What an *achrochordon* is.

What a *thymus* is.

St. Fiacris figges.

CHAP. LXII.

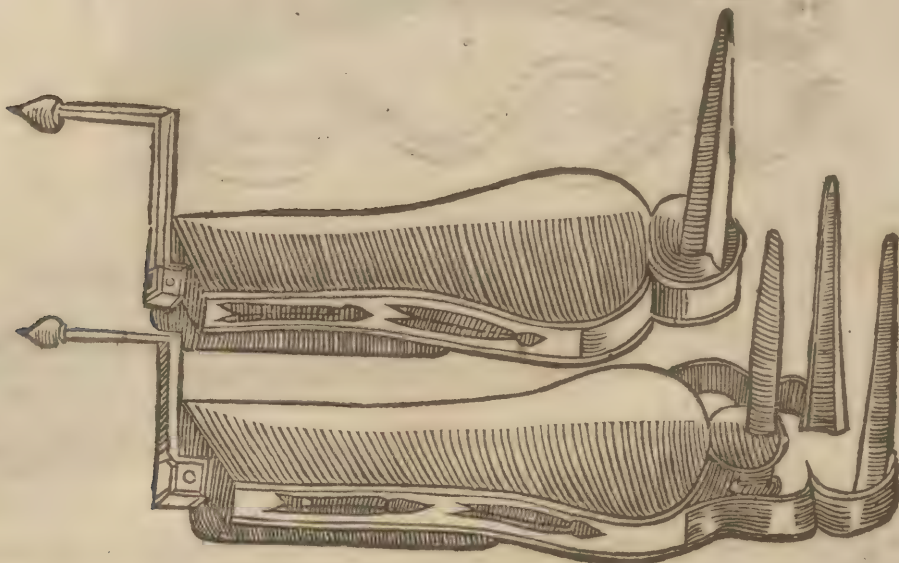
Of the cure of the Warts that are in the necke of the wombe.

What warts of
the wombe must
be bound and so
cut off.

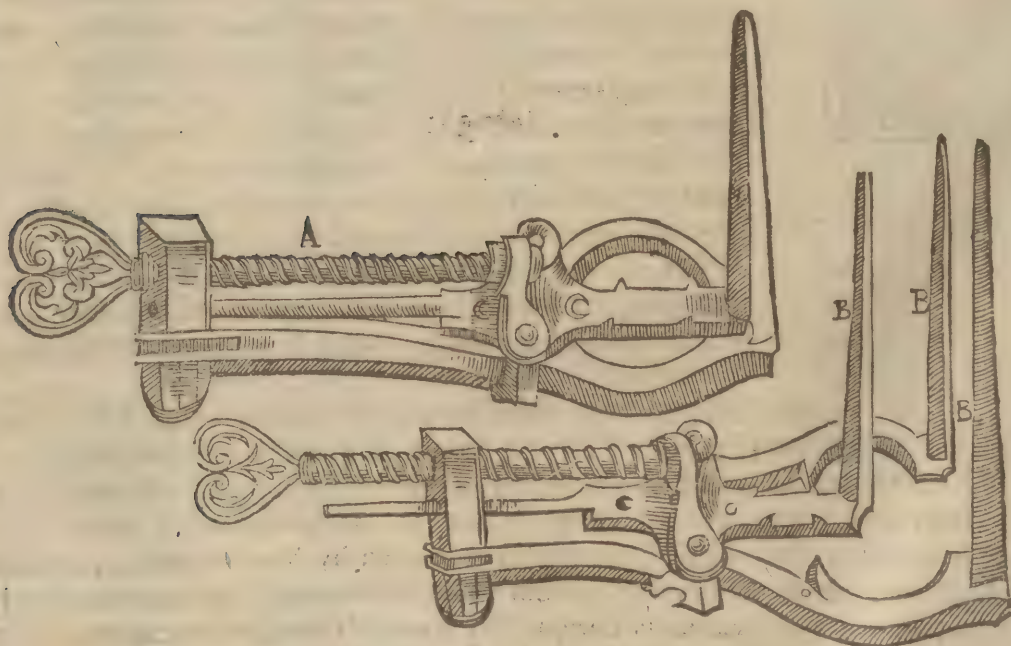


He warts that grow in the necke of the wombe, if they bee not maligne, are to bee tyed with a thread, and so cut off. Those that lye hid more deep in the wombe, may be seene and cured by opening the *matrix* with a dilater made for the purpose.

Divers Specula matricis, or Dilators for the inspection of the matrix.



*An other forme of a dilater or Speculum matricis, whereof
the declaration followeth.*



A. sheweth the screw which butteth and openeth the dilater of the matrix.

B.B. shew the armes or branches of the instrument, which ought to be eight or nine fingers long.

But

But these dilaters of the matrix ought to be of a bignesse correspondent to the patients body; let them be put into the matrix when the woman is placed as wee have said, when the child is to be drawne out of her body. That instrument is most meet to tye the warts, which wee have described in the relaxation of the palate or *uvula*: let them bee tyed harder and harder every day untill they fall away. Therefore for the curing of warts there are three chiefe scopes, as bands, sections, cauteries; and lest they grow up againe, let oyle of vitrioll be dropped on the place, or *aqua fortis*, or some of the lye wherewith potentiall cauteries are made. This water following is most effectuell to consume and waste warts. *Rx. aq. plantag. ʒ vi. virid. aris, ʒ ii. alum. roch. ʒ iii. sal. com. ʒ ʒ. vit. rom. & sublim. an. ʒ ʒ.* beat them all together, and boile them; let one or two drops of this water be dropped on the grieved place, not touching any place else; but if there be an ulcer, it must be cured as I have shewed before. A certain man, studious of physick, of late affirmed to me that oxe dung tempered with the leaves or powder of savine, would waste the warts of the wombe, if it were applied thereto warme; which whether it be true or not, let experience, the mistresse of things, be judge: verily *cantharides* put into unguents, will doe it, and (as it is likely) more effectually; for they will consume the callousnesse which groweth betweene the toes or fingers. I have proved by experience that the warts that grow on the hands, may be cured by applying of purslain beaten or stamp in its own juice. The leaves and flowers of marigolds doe certainly performe the selfe same thing.

Three scopes
of the cure of
warts in the
wombe.

An effectuell
water to con-
sume warts.

Unguent to
consume warts.

CHAP. LXIII.

Of chaps, and those wrinkled and hard excrescences which the greeks call Condylomata.



Chaps or fissures, are cleft and very long little ulcers, with paine very sharpe and burning, by reason of the biting of an acride, salt and drying humour, making so great a contraction, and often times narrownesse in the fundament and the necke of the wombe, that scarcely the toppe of ones finger may be put into the orifice thereof, like unto pieces of leather or parchment, which are wrinkled and parched by holding of them to the fire. They rise sometimes in the mouth, so that the patient can neither speake, eat, nor open his mouth, so that the Chirurgian is constrained to cut it. In the cure thereof, all sharpe things are to be avoided, and those which mollifie are to be used, and the grieved part or place is to be moistened with fomentations, liniments, cataplasmes, emplaisters, and if the malady bee in the wombe, a dilater of the matrix or pessary must be puttherinto very often, so to widen that which is over hard, & too much drawn together or narrow, and then the cleft little ulcers must be cicatrized. *Condylomata* are certaine wrinkled and hard bunches, and as it were excrescences of flesh, rising especially in the wrinkled edges of the fundament and neck of the womb. Cooling and relaxing medicines ought to be used against this disease, such as are oile of egges, and oyle of linseed, take of each of them two ounces, beat them together a long time in a leaden mortar, and therewith anoint the grieved part; but if there be an inflammation, put thereto a little camphire.

What chaps
are.

The cure.

What condyloma
mata are.

The cure.

CHAP. LXIV.

Of the itching of the wombe.



IN women, especially such as are old, there often times commeth an itching in the neck of the wombe, which doth so trouble them with pain and a desire to scratch, that it taketh away their sleep. Not long since a woman asked my counsell, that was so troubled with this kind of malady, that she was constrained to extinguish or stay the itching burning of her

What the itch
of the wombe is.

A history.

The cause of the itch.

The vertue of unguent. enulat.

her secret parts by sprinkling cinders of fire, and rubbing them hard on the place; I co unselled her to take *egypt.* dissolved in sea-water or lye, & inject it into her secret parts with a syringe, and to wet stupes of flaxe in the same medicine, and put them up into the wombe, and so she was cured. Many times this itch commeth in the fundament or testicles of aged men, by reason of the gathering together or conflux of salt flegme, which when it falleth into the eyes, it causeth the patient to have much adoe to refraine scratching: when this matter hath dispersed it selfe into the whole habite of the body, it causeth a burning or itching scabbe, which must be cured by a cooling and a moistening diet, by phlebotomy and purging of the salt humour, by bathes and hornes applied, with scarification and anointing of the whole body with the unction following. *R. axung. porcin. recent. lb i β. sap. nig. vel gallici, salis nitri, assat. tartar. staphisag. an. 3 β. sulph. viv. 3 i. argent. viv. 3 ii. acet. ros. quart. i.* incorporate them all together, and make thereof a liniment according to art, and use it as is said before: *unguentum enulatum cum mercurio* is thought to have great force, not without desert, to assuage the itch, and dry the scab. Some use this that followeth. *R. alum. spum. nitr. sulph. viv. an. 3 vi. staphis. 3 i.* let them all be dissolved in vinegar of roses, adding thereto *butyr. recent. q. s.* make thereof a liniment for the forenamed use.

CHAP. LXV.

Of the relaxation of the great gut or intestine, which happeneth to women.

The cause.



The cure.

An effectuall remedy.

The differences and signes.

A history.

Any women that have had great travell and straines in child-birth, have the great intestine (called of the Latines *crassum intestinum*) or gut, relaxed and slipped down; which kind of affect happeneth much to children, by reason of a phlegmaticke humour moistening the sphincter muscle of the fundament, and the two others called *levatores*. For the cure thereof, first of all the gut called *rectum intestinum* or the straight gut, is to be fomented with a decoction of heating and resolving herbes, as of sage, rosemary, lavender, thyme, and such like; and then of astringent things, as of roses, myrtills, the rinds of pomegranats, cypresse nuts, galles, with a little alome, then it must be sprinkled with the powder of things that are astringent without biting, and last of all it is to be restored and gently thrust into its place. That is supposed to bee an effectuall and singular remedy for this purpose, which is made of twelve red snails put into a pot with 3 β. of alome, and as much of salt, and shaken up and down a long time, for so at length when they are dead there will remaine an humour, which must bee put upon cotton, and applied to the gut that is fallen downe. By the same cause (that is to say of painfull childe-birth in some women) there ariseth a great swelling in the navell, for when the *peritoneum* is relaxed or broken, sometimes the Kall, and sometimes the guts slippe out: many times flatulencies come thither: the cause, as I now shewed, is over great straining or stretching of the belly, by a great burthen carried in the wombe, and great travaile in childe-birth: if the fallen downe guts make that tumour, paine joyned together with that tumour doth vexe the patient, and if it be pressed you may heare the noise of the guts going backe againe: if it be the Kall, then the tumour is soft, and almost without pain, neither can you heare any noise by compression: if it be winde, the tumour is loose and soft, yet it is such as will yeeld to the pressing of the finger with some sound, and will soone returne againe: if the tumour be great, it cannot be cured unlesse the *peritoneum* bee cut, as it is said in the cure of ruptures. In the church-porches of *Paris* I have seene begger-women, who by the falling downe of the guts, have had such tumours as big as a bowle, who notwithstanding could goe, and doe all other things as if they had beene sound and in perfect health: I think it was because the *faces* or excrements, by reason of the greatnesse of the tumor, and the bignesse or widenesse of the intestines, had a free passage in and out.

CHAP. LXVI.

Of the relaxation of the navell in children.

Often times in children newly borne, the navell swelleth as bigge as an egg, because it hath not bin well cut or bound, or because the whayish humours are flowd thither, or because that part hath extended it selfe too much by crying, by reason of the paines of the fretting of the childe guts, many times the childe bringeth that tumour joined with an abscesse with him from his mother wombe: but let not the Chirurgian assay to open that abscesse, for if it be opened, the guts come out through the incision, as I have scene in many, and especially in a child of my Lord *Martiques*; for when *Peter* of the Rocke, the Chirurgian, opened an abscesse that was in it, the bowels ranne out at the incision, and the infant died; and it wanted but little that the Gentlemen of my Lords retinue that were there, had strangled the Chirurgian. Therefore when *John Gromontius* the Carver desired me, and requested mee of late that I would doe the like in his sonne, I refused to doe it, because it was in danger of its life by it already, and in three daies after the abscesse broke, and the bowells gushed out, and the childe died. .

An abscesse not to be opened.

A history.

CHAP. LXVII.

Of the paine that children have in breeding of teeth.

Children are greatly vexed with their teeth, which cause great paine when they begin to break, as it were, out of their shell or sheath, and begin to come forth, the gummes being broken, which for the most part happeneth about the seventh month of the childs age. This pain commeth with itching and scratching of the gummes, an inflammation, fluxe of the belly, whereof many times commeth a feaver, falling of the hair, a convulsion, and at length death. The cause of the paine is the solution of the continuity of the gummes by the coming forth of the teeth. The signes of that pain is an unaccustomed burning, or heat of the childe's mouth, which may bee perceived by the nurse that giveth it sucke, a swelling of the gummes and cheekes, and the childe being more wayward and crying than it was wont, and it will put its fingers to its mouth, and it will rubbe them on its gummes as though it were about to scratch, and it flavereth much. That the Physician may remedy this, hee must cure the nurse as if she had the feaver, and shee must not suffer the childe to sucke so often, but make him coole and moist when hee thirsteth by giving him at certaine times *syrupus alexandrinus*, *syrup. de limonibus*, or the syrupe of pomegranats with boiled water; yet the childe must not hold those things that are actually cold long in his mouth, for such by binding the gums, doe in some sort stay the teeth that are newly coming forth; but things that lenifie and mollifie are rather to bee used, that is to say, such things as doe by little and little relaxe the loose flesh of the gummes, and also assuage the paine. Therefore the nurse shall often times rubbe the childs gummes with her fingers, anointed or besmeared with oyle of sweet almonds, fresh butter, hony, sugar, mucilage of the seeds of *psyllium*, or of the seeds of marsh mallows extracted in the water of pellitory of the wall. Some thinke that the braine of a hare, or of a sucking pig roasted or sodden, through a secret property, are effectually for the same: and on the outside shall be applied a cataplasme of barley meale, milke, oyle of roses, and the yelkes of egges. Also a stick of liquorice shaven and bruised and anointed with hony, or any of the forenamed syrups, and often rubbed in the mouth or on the gummes, is likewise profitable: so is also any toy for the childe to play withall, wherein a wolves tooth is set, for this by scratching doth assuage the painfull itching, and rarifie the gummes, and in some weareth them that the teeth appeare the sooner. But many times it happeneth that

The time of breeding of the teeth.

The cause of the paine in breeding teeth. The signes.

The cure.

What power scratching of the gums hath to assuage the pain of them.

all

A history.

all these and such like medicines profit nothing at all, by reason of the contumacy of the gums, by hardnesse or the weaknesse of the chilles nature : therefore in such a cause, before the forenamed mortall accidents come, I would perswade the Chirurgicalian to open the gummes in such places as the teeth bunch out with a little swelling, with a knife or lancet, so breaking and opening a way for them, notwithstanding that a little fluxe of blood will follow by the tension of the gummes : of which kind of remedy I have with prosperous and happy successe made tryall in some of mine owne children, in the presence of *Fewreus*, *Altinus*, and *Cortinus*, Doctors of Physick, and *Guillemeau* the Kings Chirurgian, which is much better and more safe than to doe as some nurses doe, who taught onely by the instinct of nature, with their nailes and scratching, breake and teare, or rent the childrens gummes. The Duke of *Nevers* had a sonne of eight moneths old, which died of late, and when wee, with the Physitians that were present, diligently sought for the cause of his death, we could impute it unto nothing else, than to the contumacious hardnesse of the gums, which was greater than was convenient for a childe of that age ; for therefore the teeth could not breake forth, nor make a passage for themselves to come forth : of which our judgement this was the tryall, that when we cut his gummes with a knife, we found all his teeth appearing as it were in an array, ready to come forth, which if it had bin done when he lived, doubtlesse he might have beene preserved.

The End of the twenty fourth Booke.





OF
MONSTERS
AND
PRODIGIES.

THE TWENTY FIFTH BOOK.

THE PREFACE.

WEE call Monsters, what things soever are brought forth contrary to the common decree and order of nature. So wee terme ^{what a monster is.} that infant monstrous, which is borne with one arme alone, or with two heads. But we define Prodigies, those things which happen contrary to the whole course of nature, that is, altogether ^{What a prodigious.} differing and dissenting from nature: as, if a woman should bee delivered of a Snake, or a Dogge. Of the first sort are thought all those, in which any of those things, which ought, and are accustomed to bee, according to nature, is wanting, or doth abound, is changed, worne, covered or defended, hurt, or not put in his right place: for sometimes some are born with more fingers than they should, others some but with one finger: some with those parts divided which should be joyned, others with those parts joyned which should be divided: some are borne with the privities of both sexes, male and female. And Aristotle saw a Goat with a horne upon her knee. No living creature was ever ^{Lib. 4. Gen. anim. cap. 4.} borne which wanted the Heart, but some have beene seene wanting the Spleene, others with two Spleenes, and some wanting one of the Reines. And none have bin known to have wanted the whole Liver, although some have bin found that had it not perfect and whole: and there have beene those which wanted the Gall, when by nature they should have had it: and besides, it hath beene seene that the Liver, contrary to his naturall site, hath lien on the left side, and the Spleene on the right. Some women also have had their privities closed, and not perforated, the membranous obstacle, which they call the Hymen, binding. And men are sometimes borne with their fundaments, eares, noses, and the rest of the passages shut, and are accounted monstrous, nature erring from its intended scope. But to conclude, those Monsters are thought to portend some ill, which are much differing from their nature.

CHAP. I.

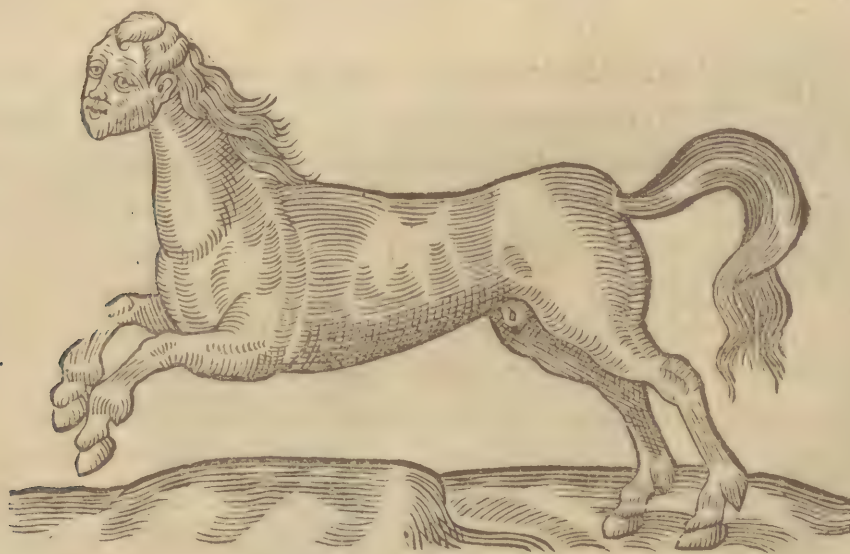
*Of the cause of Monsters ; and first of those Monsters which appeare
for the glory of God, and the punishent of
mens wickednesse.*

Here are reckoned up many causes of monsters ; the first whereof is the glory of God, that his immense power may be manifested to those which are ignorant of it, by the sending of those things which happen contrary to nature: for thus our Saviour Christ answered the Disciples (asking whether he or his parents had offended, who, being born blind, received his sight from him) that neither he nor his parents had committed any fault so great, but this to have happened onely that the glory and majesty of God should be divulged by that miracle, and such great workes.

Another cause is, that God may either punish mens wickednesse, or shew signes of punishment at hand, because parents sometimes lye and joine themselves together without law and measure, or luxuriously and beastly, or at such times as they ought to forbear by the command of God and the Church, such monstrous, horrid and unnaturall births doe happen.

At *Verona Anno Dom. 1254.* a mare foaled a colt, with the perfect face of a man, but all the rest of the body like an horse : a little after that, the warre betweene the *Florentines* and *Pisans* began, by which all *Italy* was in a combustion.

The figure of a Colt with a mans face.



About the time that *Pope Julius* the second raised up all *Italy*, and the greatest part of *Christendome*, against *Lewis* the twelfth the King of *France*, in the yeere of our Lord 1512. (in which yeere, upon Easter day, neere *Ravenna* was fought that mortall battell, in which the Popes forces were overthrowne) a monster was borne in *Ravenna*, having a horne upon the crowne of his head, and besides, two wings, and one foot alone, most like to the feet of birds of prey, and in the knee thereof an eye, the privities of male and female, the rest of the body like a man, as you may see by the following figure.

The

The figure of a winged Monster.

of some begging companions; therefore we will speak briefly of them in their place in this our treatise of monsters.

The third cause is, an abundance of seed & overflowing matter. The fourth, the same in too little quantity, and deficient. The fifth, the force and efficacy of imagination. The sixth, the straightnesse of the wombe. The seventh, the disorderly fire of the parrty with childe, and the position of the parts of the body. The eighth, a fall, straine or stroake, especially upon the belly of a woman with child. The ninth, hereditary diseases, or affects by any other accident. The tenth, the confusion and mingling together of the seed. The eleventh, the craft and wickednesse of the divell. There are some others which are accounted for monsters, because they have their originall or essence full of admiration, or doe assume a certaine prodigious forme by the craft

C H A P. II.

Of monsters caused by too great abundance of seed.

Being wee have already handled the two former and truly finall causes of monsters, we must now come to those which are the matterall, corporeall, and efficient causes, taking our beginning from that we call the too great abundance of the matter of seed. It is the opinion of those Philosophers which have written of monsters, that if at any time a creature bearing one at once, as man, shall cast forth more seed in copulation than is necessary to the generation of one body, it cannot be that onely one should bee begot of all that; therefore from thence either two or more must arise: whereby it cometh to passe, that these are rather judged wonders, because they happen seldome, and contrary to common custome. Superfluous parts happen by the same cause, that twinnes, and many at one birth, contrary to natures course, doe chance, that is, by a larger effusion of seed than is required for the framing of that part, that so it exceeds either in number or else in greatnesse. So *Austin* tells that in his time in the East an infant was borne, having all the parts from the belly upwards double, but from thence downwards single and simple: for it had two heads, foure eyes, two breasts, foure hands, in all the rest like to another child, and it lived a little while. *Calius Rhodiginus* saith he saw two monsters in *Italy*, the one male, the other female, handsomly & neatly made through all their bodies, except their heads, which were double; the male died within a few daies after it was borne; but the female (whose shape is here delineated) lived 20. five yeeres, which is contrary to the common custome of monsters; for they for the most part are very short lived, because they both live and are born, as it were, against natures consent; to which may be added, they doe not love themselves, by reason they are made a scorne to others, and by that meanes lead a hated life.

Monsters are
seldome long
lived.

The effigies of a maide with two heads.



But it is most remarkeable which *Lycophenes* telleth of this woman-monster, for excepting her two heads, shee was framed in the rest of her body to an exact perfection : her two heads had the like desire to eat and drinke, to sleepe, to speake, and to doe every thing ; she begged from dore to dore, every one giving to her freely. Yet at length she was banisht *Bavaria*, lest that by the frequent looking upon her, the imaginations of women with childe, strongly moved, should make the like impression in the infants they bare in their wombes.

The effigies of two girles whose backs grew together.



In the yeere of our Lord 1475. at *Verona* in *Italy*, two Girles were borne with their backs sticking together from the lower part of the shoulders unto the very buttockes. The novelty and strangeness of the thing moved their parents, being but poor, to carry them through all the chiefe townes in *Italy* to get mony of all such as came to see them.

In the yeere 1530. there was a man to bee seene at *Paris*, out of whose belly another, perfect in all his members except his head, hanged forth as if he had been grafted there. The man was forty yeeres old, and hee carried the other implanted or growing out of him, in his armes, with such admiration to the beholders, that many ranne very earnestly to see him.

The figure of a man with another growing out of him.



The effigies of the horned or hooded monster.



At *Quiers*, a small village some ten miles from *Turine* in *Savoy*, in the yeere 1578. upon the seventeenth day of January, about eight a clocke at night, an honest matron brought forth a childe having five hornes, like to Rams hornes, set opposite to one another upon his head: he had also a long piece of flesh, like in some sort to a French-hood which women used to wear, hanging downe from his forehead by the nape of his necke almost the length of his backe: two other pieces of flesh, like the collar of a shirt, were wrapped about his necke: the fingers ends of both his hands somewhat resembled a Haukes talons, and his knees seemed to be in his hammes: the right leg and the right foot were of a very red colour; the rest of the body was of a tawny colour: it is said he gave so terrible a scritch when he was brought forth, that the Midwives, and the rest of the women that were at her labour, were so frightened that they presently left the house and ran away. When the Duke of *Savoy* heard of this monster, he commanded it should be brought to him, which performed, one would hardly think what various censures the Courtiers gave of it.

The shape of a monster found in an egge.



The monster you see here delineated, was found in the middle and innermost part of an egge, with the face of a man, but haire yielding a horrid representation of snakes; the chinne had three other snakes stretched forth like a beard. It was first scene at *Aulun*, at the house of one *Bancheron* a Lawyer, a maide breaking many eggs to butter: the white of this egge given a Cat, presently killed her. Lastly, this monster coming to the hands of the Baron *Senecy*, was brought to King *Charles* the ninth being then at *Metz*.

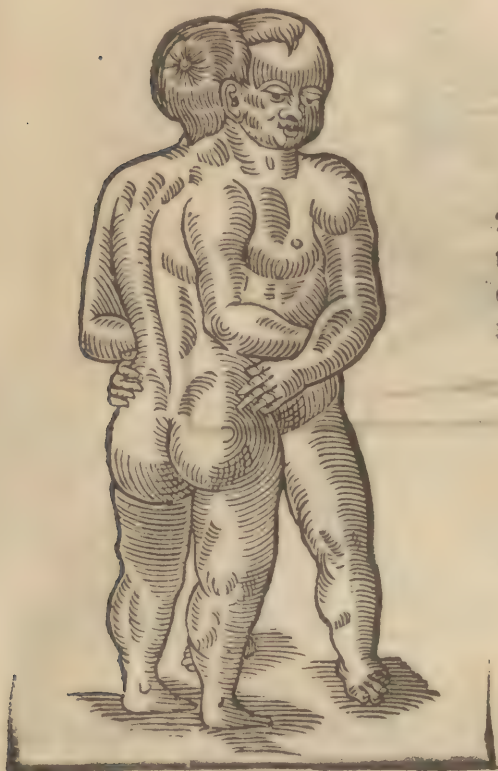
The effigies of a monstrous childe, having two heads, two armes & foure legs.



Arist. in problem.

In the yeere 1546. a woman at *Paris* in her sixt moneth of her account, brought forth a childe having two heads, two armes and toure legges: I dissecting the body of it, found but one heart, by which one may know it was but one infant. For you may know this from *Aristotle*, whether the monstrous birth bee one or more joined together, by the principall part: for if the body have but one heart, it is but one, if two, it is double by the joyning together in the conception.

The portraiture of Twinnes joyned together with one head.



In the yeere 1569. a certaine woman of *Towers* was delivered of twinnes joyned together with one head, and mutually embracing each other. *Renatus Cretus* the famous Chirurgian of those parts, sent mee their *Skeleton*.

The effigies of two girles, being Twinnes, joyned together by their fore-heads.



Munster writes that in the village *Bristant*, not farre from *Wormes*, in the yeere 1495. he saw two Girles perfect and entire in every part of their bodies, but they had their fore-heads so joyned together that they could not be parted or severed by any art: they lived together ten yeeres; then the one dying, it was needfull to separate the living from the dead: but she did not long out-live her sister, by reason of the malignity of the wound made in parting them asunder.

In the yeere 1570. the twentieth of July, at *Paris*, in the street *Gravilliers*, at the signe of the Bell, these two infants were borne, differing in sexe, with that shape of body that you see expressed in the figure. They were baptized in the Church of *St. Nicholas* of the fields, and named *Ludovicus* and *Ludovica*, their father was a Mason, his name was *Peter German*, his surname *Petit Dieu* (i) little-God, his mothers name was *Mathea Petronilla*.

The shape of the infants lately borne at Paris.



The figure of two girles joyned together
in their breasts and belly.



In the yeere 1572. in *Pont de See*, neare *Angers* a little towne, were borne upon the tenth day of *July*, two girles, perfect in their limbs, but that they had but foure fingers apiece on their left hands: they clave together in their fore parts, from their chin to the navell, which was but one, as their heart was also but one; their liver was divided into foure lobes: they lived halfe an houre, and were baptized.

The figure of a child with two heads, and the body as bigge as one of foure moneths old.



*Var. lect. lib. 24.
cap. 3.*

Celius Rhodiginus tells that in a town of his country called *Sarzano*, *Italy* being troubled with civill warres, there was born a monster of unusual bigness; for he had two heads, having all his limbs answerable in greatness & tallnesse to a child of foure months old: between his two heads, which were both alike, at the setting on of the shoulder, it had a third hand put forth, which did not exceed the eares in length, for it was not all seen: it was born the 5. of the Ides of *March* 1514.

The figure of one with foure legges and
as many armes.



Jovianus Pontanus tells in the yeere 1529.
the ninth day of *January*, there was a man
childe borne in *Germany*, having foure armes
and as many legges.

The figure of a man out of whose belly another
head shewed it selfe.



In the yeere that *Francis* the first King of
France entered into league with the *Swisses*,
there was borne a monster in *Germany*, out of
the midst of whose belly there stood a great
head; it came to mans age, and this lower, and
as it were inserted head, was nourished as
much as the true and upper head.

In the yeere 1572. the last day of *February*, in the parish of *Viaban*, in the way as
you goe from *Carnuta* to *Paris*, in a small village called *Bordes*, one called *Cypriana*
Giranda the, wife of *James Merchant* a husbandman, brought forth this monster
whose shape you see here delineated, which lived untill the Sunday following, being
but of one onely sexe, which wasthe female.

The shape of two monstrous Twinnes, being but of one onely Sexe.



In the yeere 1572. on Easter Munday at *Metz* in *Lorraine*, in the *Inne* whose signe is the Holy-Ghost, a Sow pigged a pigge, which had eight legges, foure eares, and the head of a dogge; the hinder part from the belly downward was parted in two as in twinnes, but the foreparts grew into one; it had two tongues in the mouth, with foure teeth in the upper jaw, and as many in the lower. The sexe was not to be distinguished, whether it were a Bore or Sow pigge, for there was one slit under the taile, and the hinder parts were all rent and open. The shape of this monster, as it is here set downe, was sent me by *Borgesius* the famous Physitian of *Metz*.

The shape of a monstrous Pigge.



CHAP. III.

Of women bringing many children at one birth.



Woman is a creature bringing usually but one at a birth: but there have been some who have brought forth two, some three, some foure, five, sixe, or more at one birth. *Empedocles* thought that the abundance of seed was the cause of such numerous births: the *Stoikes* affirme the divers cells or partitions of the wombe to be the cause: for the seed being

vari-

variously parted into these partitions, and the conception divided, there are more children brought forth; no otherwise than in rivers, the water beating against the rockes, is turned into divers circles or rounds. But *Aristotle* saith there is no reason to think so, for in women that parting of the womb into cells, as in dogs and sowes, ^{4. de gen. anim. cap. 4.} taketh no place; for womens wombes have but one cavity, parted into two recesses, the right & left, nothing comming between, except by chance distinguished by a certain line; for often twins lye in the same side of the womb. *Aristotles* opinion is, that a woman cannot bring forth more than five children at one birth. The maide of *Augustus Caesar* brought forth five at a birth, & a short while after, she & her children died. In the year 1554. at *Bearn* in *Switzerland*, the wife of *Dr. John Geling* brought forth five children at one birth, three boies and two girles. *Albucasis*, affirms a woman to have bin the mother of seven children at one birth; & another, who by some externall injury did abort, brought forth fiftene perfectly shaped in all their parts. *Pliny* reports that it was extant in the writings of Physicians, that twelve children were borne at one birth; and that there was another in *Peloponnesus* which foure severall times was delivered of five children at one birth, and that the greater part of those children lived. It is reported by *Dalechampius* that *Bonaventura* the slave of one *Savill*, a Gentleman of *Sena*, at one time brought forth seven children, of which four were baptized. In our time, between *Sarte* and *Maine*, in the parish of *Seaux*, not far from *Chambellay*, there is a family and noble house called *Maldemeure*; the wife of the Lord of *Maldemeure*, the first yeere she was married brought forth twinnes, the second yeere she had three children, the third yeere foure, the fourth yeere five, the fift yeere sixe, and of that birth she died: of those sixe one is yet alive, and is Lord of *Maldemeure*. In the valley of *Beaufort*, in the county of *Anjou*, a young woman the daughter of *Mace Channiere*, when at one perfect birth shee had brought forth one child, the tenth day following she fell in labour of another, but could not be delivered untill it was pulled from her by force, and was the death of the mother. *Martin Cromerus* the author of the Polish history, writeth that one *Margaret*, a woman sprung from a noble and antient family neere *Cracovia*, and wife to Count *Virboflavus*, brought forth at one birth thirty five live children, upon the twentieth day of *January*, in the yeere 1296. *Franciscus Picus Mirandula* writeth that one *Dorothy* an Italian had twenty children at two births, at the first nine, and at the second eleven, and that she was so bigge, that she was forced to beare up her belly, which lay upon her knees, with a broad and large scarf tyed about her necke, as you may see by the following figure.

^{Lib. 7. cap. 11. Cap 3.}
The ninth booke
of the Polish
history.

The picture of Dorothy, great with child with many children.



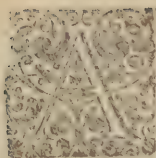
And they are to bee reprehended here againe, who affirme the cause of numerous births to consist in the variety of the cells of the wombe, for they feigne a womans wombe to have seven cells or partitions, three on the right side for males, three on the left side for females, and one in the midst for Hermaphrodites or Scrats : and this untruth hath gon so far, that there have bene some that affirmed every of these seven cells to have bin divided into ten partitions, into which the seed dispersed, doth bring forth a divers and numerous encrease, according to the variety of the cells furnished with the matter of seed, which though it may seeme to have been the opinion of *Hippocrates*, in his book *De natura Pueri*, notwithstanding it is repugnant to reason, and to those things which are manifestly apparent to the eyes and senses.

Lib. 4. de gen.
anim. cap. 4.

The opinion of *Aristotle* is more probable, who saith twinnes and more at one birth, are begot and brought forth by the same cause that the sixth finger groweth on the hand, that is, by the abundant plenty of the seed, which is greater and more copious than can bee all taken up in the naturall framing of one body : for if it all be forced into one, it maketh one with the parts encreased more than is fit, either in greatnesse or number ; but if it bee, as it were, cloven into divers parts, it causeth more than one at one birth.

CHAP. IV.

Of Hermaphrodites or Scrats.



And here also we must speake of Hermaphrodites, because they draw the cause of their generation and conformation from the plenty and abundance of seed, and are called so because they are of both sexes, the woman yeelding as much seed as the man. For hereupon it commeth to passe that the forming faculty (which alwaies endeavours to produce some-

something like it selfe) doth labour both the matters almost with equall force, and is the cause that onebody is of both sexes.

Yet some make foure differences of Hermaphrodites; the first of which is the male Hermaphrodite, who is a perfect and absolute male, and hath onely a slit in the *Perinaem* not perforated, and from which neither urine nor seed doth flow. The second is the female, which besides her naturall privity, hath a fleshy and skinny similitude of a mans yard, but unapt for erection and ejaculation of seed, and wanteth the cold and stones; the third difference is of those, which albeit they beare the expresse figures of members belonging to both sexes, commonly set the one against the other, yet are found unapt for generation, the one of them onely serving for making of water: the fourth difference is of those who are able in both sexes, and thoroughly performe the part both of man and woman, because they have the genitalls of both sexes compleat and perfect, and also the right breast like a man, and the left like a woman: the lawes command those to chuse the sexe which they will use, and in which they will remaine and live, judging them to death if they be found to have departed from the sexe they made choice of, for some are thought to have abused both, and promiscuously to have had their pleasure with men and women. There are signes by which the Physitians may discern whether the Hermaphrodites are able in the male or female sexe, or whether they are impotent in both: these signes are most apparent in the privities and face, for if the matrix be exact in all its demensions, and so perforated that it may admit a mans yard, if the courses flow that way, if the hure of the head bee long, slender, and soft, and to conclude, if to this tender habite of the body a timide and weake condition of the minde be added, the female sexe is predominant, and they are plainely to bee judged women. But if they have the *Perinaem* and fundament full of haire (the which in women are commonly without any) if they have a yard of a convenient largeness, if it stand well & readily, and yeeld seed, the male sexe hath the preheminnence, and they are to be judged men. But if the conformation of both the genitalls be alike in figure, quantity, and efficacy, it is thought to be equally able in both sexes: although by the opinion of *Aristotle*, those who have double genitalls, the one of the male, the other of the female, the one of them is alwaies perfect, the other imperfect.

Lib. 4. de gener. anim. cap. 5.

The figure of Hermaphrodite twinnes cleaving together with their backes.



Anno Dom. 1486. In the Palatinate, at the village Robach, neere Heidelberg, there were twinnes, both Hermaphrodites, borne with their backes sticking together.

*The effigies of an Hermaphrodite, having
foure hands and feet.*



The same day the *Venetians* and *Genoeses* entred into league, there was a monster borne in *Italy* having foure armes and feet, and but one head; it lived a little after it was baptized. *James Ruef* a *Helvetian* Chirurgical saith hee saw the like, but which besides had the privities of both sexes, whose figure I have therefore here set forth.

CHAP. V.

Of the changing of Sexe.



Matus Lusitanus reports that in the village *Esquina*, there was a maid named *Maria Pateca*, who at the appointed age for her courses to flow, had in stead of them a mans yard, lying before that time hid and covered, so that of a woman she became a man, and therefore laying aside her womans habite, was cloathed in mans, and changing her name, was called *Emanuel*; who when hee had got much wealth by many and great negotiations and commerce in *India*, returned into his country, and married a wife: but *Lusitanus* saith he did not certainly know whether he had any children, but that he was certaine he remained alwaies beardlesse.

Anthony Loqueneux, the Kings keeper or receiver of his rents of *St. Quintin* at *Vermandois*, lately affirmed to me that he saw a man at *Reimes*, at the *Inne* having the sign of the swan, in the yeer 1560. who was taken for a woman untill the fourteenth yeere of his age; for then it happened as he played somewhat wantonly with a maid which lay in the same bed with him, his members (hitherto lying hid) started forth and unfolded them selves: which when his parents knew (by helpe of the Ecclesiastick power) they changed his name from *Joane* to *John*, and put him in mans apparell.

Some yeeres agoe, being in the traine of King *Charles* the ninth, in the French Glasse-houfe, I was shewed a man called *Germane Garnierus*, but by some *Germane Maria* (because in former times when he was a woman hee was called *Mary*) he was of an indifferent stature, and well set body, with a thicke and red beard; he was taken for a girle untill the fifteenth yeere of his age, because there was no signe of being a man seene in his body, and for that amongst women, he in like attire did those things which pertaine to women: in the fifteenth yeere of his age, whilest he somewhat earnestly pursued hogges given into his charge to bee kept, who running into the corne, he leaped violently over a ditch, whereby it came to passe that the stayes and foldings being broken, his hidden members sodainly broke forth, but not without paine; going home, hee weeping complained to his mother that his gus came forth:

forth : with which his mother amazed, calling Physitians and Surgeons to counsell, heard he was turned into a man ; therefore the whole businesse being brought to the Cardinall the Bishop of *Lenancure*, an assembly being called, he received the name and habite of a man.

Pliny reports that the sonne of *Cassinus* of a girle became a boy, living with his parents ; but by the command of the Soothsayers he was carried into a desert Isle, because they thought such monsters did alwaies shew or portend some monstrous thing. Certainly women have so many and like parts lying in their wombe, as men have hanging forth ; onely a strong and lively heat seemes to bee wanting, which may drive forth that which lyes hid within : therefore in processe of time, the heat being encreased and flourishing, and the humidity (which is predominant in childhood) overcome, it is not impossible that the virile members, which hitherto sluggish by defect of heat, lay hid, may be put forth, especially if to that strength of the growing heat some vehement concussion or jactation of the body be joined. Therefore I thinke it manifest by these experiments and reasons, that it is not fabulous that some women have beene changed into men : but you shall finde in no history men that have degenerated into women ; for nature alwaies intends and goes from the imperfect to the more perfect, but not basely from the more perfect to the imperfect.

CHAP. VI.

Of monsters caused by defect of seed.



F on the contrary, the seed be any thing deficient in quantity, for the conformation of the infant or infants, some one or more members will be wanting, or more short and decrepite. Hereupon it happens that nature intending twinnes, a childe is borne with two heads, and but one arme, or altogether lame in the rest of his limbes.

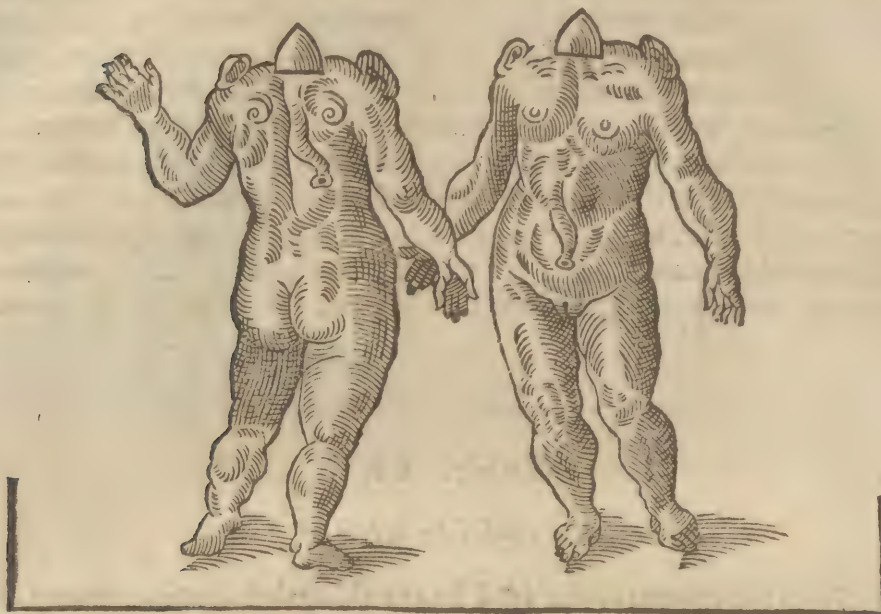
The effigies of a monstrous childe, by reason of the defect of the matter of seed.



Anno Dom. 1573. I saw at *St. Andreues Church* in *Paris*, a boy nine yeeres old, borne in the village *Parpavilla*, fixe miles from *Guise*, his fathers name was *Peter Renard*, and his mother, *Marquete* : hee had but two fingers on his right hand, his arm was well proportioned from the top of his shoulder almost to his wrest, but from thence to his two fingers ends it was very deformed, he wanted his leggs and thighes, although from the right buttocke a certaine unperfect figure, having onely foure toes, seemed to put it selfe forth, from the midst of the left buttock two toes sprung out, the one of which was not much unlike a mans yard, as you may see by the figure.

In the yeere 1562. in the Calends of November, at *Villa-franca* in *Gascony*, this monster, a headlesse woman, whose figure thou heere seest, was borne, which figure *Dr. John Altinus* the Physitian gave to mee when I went about this booke of Monsters, he having received it from *Fontanus* the Physitian of *Angolestre*, who seriously affirmed he saw it.

The figure of a monstrous woman without a head, before and behind.



A few yeeres agoe there was a man of forty yeeres old to be seene at *Paris*, who although he wanted his armes, notwithstanding did indifferently performe all those things which are usually done with the hands, for with the top of his shoulder, head and necke, hee would strike an Axe or Hatchet with as sure and strong a blow into a poast, as any other man could doe with his hand; and hee would lase a coach-mans whip, that he would make it give a great crack, by the strong refraction of the aire: but he ate, drunke, plaid at cardes, and such like, with his feet. But at last he was taken for a thiefe and murderer, was hanged and fastened to a wheele.

Also not long agoe there was a woman at *Paris* without armes, which nevertheless did cut, sew, and doe many other things, as if she had had her hands.

We read in *Hippocrates*, that *Attagenis* his wife brought forth a childe all of flesh without any bone, and notwithstanding it had all the parts well formed.

*Scilicet. 2. lib. 2.
epidem.*

The

The effigies of a man without armes, doing all that is usually done with hands.



The effigies of a monster with two heads, two legs, and but one arme.



CHAP. VII.

Of monsters which take their cause and shape by imagination.

The force of
imagination
upon the body
and humours.

Gen. chap. 30.

THe antients having diligently sought into all the secrets of nature, have marked and observed other causes of the generation of monsters: for, understanding the force of imagination to bee so powerfull in us, as for the most part, it may alter the body of them that imagine, they soon perswaded themselves that the faculty which formeth the infant may be led and governed by the firme and strong cogitation of the Parents begetting them (often deluded by nocturnall and deccitfull apparitions) or by the mother conceiving them, and so that which is strongly conceived in the mind, imprints the force into the infant conceived in the wombe: which thing many thinke to be confirmed by *Moses*, because he tells that *Jacob* encreased and bettered the part of the sheepe granted to him by *Laban*, his wives father, by putting rodde, having the barke in part pulled off, finely stroaked with white and greene, in the places where they used to drinke, especially at the time they engendered, that the representation apprehended in the conception, should be presently impressed in the young; for the force of imagination hath so much power over the infant, that it sets upon it the notes or characters of the thing conceived.

We have read in *Heliodorus* that *Persina* Queene of *Aethiopia*, by her husband *Hidustes*, being also an *Aethiope*, had a daughter of a white complexion, because in the embraces of her husband, by which she proved with childe, she earnestly fixed her eye and mind upon the picture of the faire *Andromeda* standing opposite to her. *Damascene* reports that he saw a maide hairy like a Beare, which had that deformity by no other cause or occasion than that her mother earnestly beheld, in the very instant of receiving and conceiving the seed, the image of *St. John* covered with a camells skinne, hanging upon the poasts of the bed.

They say *Hippocrates*, by this explication of the causes, freed a certain noble woman from suspicion of adultery, who being white her selfe, and her husband also white, brought forth a childe as blacke as an *Aethiopian*, because in copulation she strongly and continually had in her minde the picture of the *Aethiope*.

The effigies of a maid all hairy, and an infant that was blacke by the imagination of their Parents.



There

There are some who thinke the infant once formed in the wombe, which is done at the utmost within two & forty dayes after the conception, is in no danger of the mothers imagination, neither of the seed of the father which is cast into the womb; because when it hath got a perfect figure, it cannot be altered with any external form of things; which whether it be true, or no, is not here to be enquired of: truly I thinke it best to keep the woman, all the time she goeth with childe, from the sight of such shapes and figures.

The effigies of a horrid Monster, having feet, hands, and other parts like a Calfe.



In *Stecquer* a village of *Saxony*, they say, a monster was borne, with foure feet, eyes, mouth, and nose like a calfe, with a round and redde excrescence of flesh on the forehead, and also a piece of flesh like a hood hung from his necke upon his backe, and it was deformed with its thighs torne and cut.

The figure of an infant with a face like a Frog.



Anno Dom. 1517. in the parish of *Kingl-wood*, in the forrest *Biera*, in the way to *Fontain-Bleau*, there was a monster borne, with the face of a Frog, being seen by *John Bellanger*, Chirurgian to the Kings Engineers, before the Justices of the towne of *Harmoy*, principally *John Bribo* the Kings procurator in that place. The fathers name was *Amadeus the Little*, his mothers, *Magdale-ne Sarbucata*, who troubled with a feaver, by a womans perswasion, held a quicke frogge in her hand untill it died, she came thus to bed with her husband and conceived; *Bellanger*, a man of an acute wit, thought this was the cause of the monstrous deformity of the childe.

CHAP. VIII.

Of Monsters caused by the straitnesse of the wombe.

That the strait-
nesse or little-
nesse of the
wombe may
be the occasion
of monsters.



WE are constrained to confesse by the event of things, that monsters are bred and caused by the straitnesse of the wombe; for so apples hanging upon the trees, if before they come to just ripenesse, they bee put into strait vessels, their growth is hindered. So some whelps which women take delight in, are hindered from any further growth by the littlenesse of the place in which they are kept. Who knowes not that the plants growing in the earth, are hindered from a longer progresse and propagation of their roots, by the opposition of a flint, or any other solid body, and therefore in such places are crooked, slender and weak, but on the other part, where they have free nourishment, to bee strait and strong? for seeing that by the opinion of Naturalists, the place is the forme of the thing placed; it is necessary that those things that are shut up in straiter spaces, prohibited of free motion, should be lessened, depraved and lamed.

Empedocles and *Diphilus* acknowledged three causes of monstrous births: The too great or small matter of the seed; the corruption of the seed; and depravation of growth by the straitnesse or figure of the womb: which they thought the chiefeest of all; because they thought the case was such in naturall births, as in forming of metals and fusible things, of which statues being made, doe lesse expresse the things they be made for, if the moldes or formes into which the matter is poured, bee rough, scabrous, too strait, or otherwise faulty.

CHAP. IX.

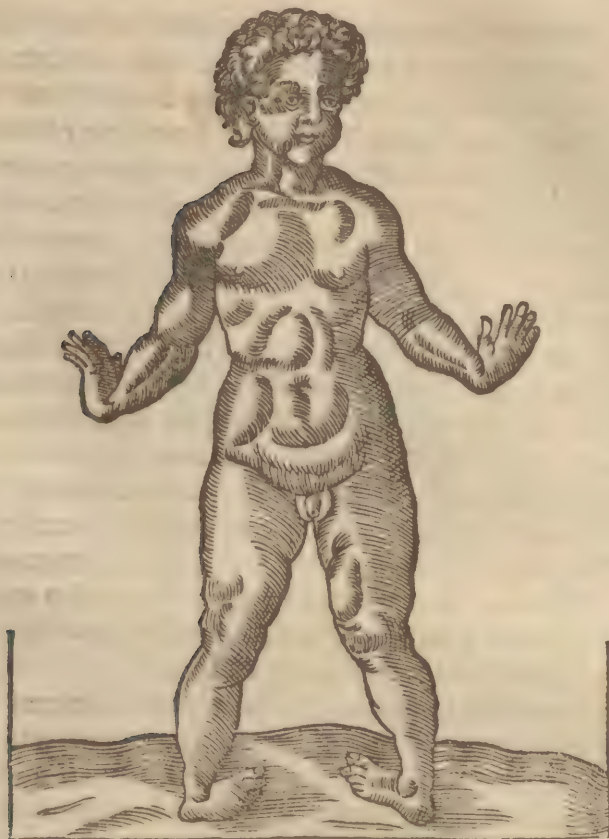
Of monsters caused by the ill placing of the mother, in sitting, lying downe, or any other site of the body in the time of her being with childe.



WE often too negligently and carelessly corrupt the benefits and corporall endowments of nature in the comelineesse and dignity of conformation: it is a thing to be lamented and pitied in all, but especially in women with childe, because that fault doth not onely hurt the mother, but deforms and perverts the infant which is contained in her wombe: for wee moving any manner of way, must necessarily move whatsoever is within us. Therefore they which sit idely at home all the time of their being with childe, or crosse-legged, those which holding their heads downe, doe sow or worke with the needle, or doe any other labour, which presse the belly too hard with cloaths, breeches or swathes, doe produce children wrie-necked, stooping, crooked and disfigured in their feet, hands, and the rest of their joints, as you may see in the following figure.

The

The effigies of a childe, who from the first conception, by the site of the mother, had his hands and feet standing crooked.



CHAP. X.

Of monsters caused by a stroake, fall, or the like occasion.

Here is no doubt but if any injury happen to a woman with childe, by reason of a stroake, fall from on high, or the like occasion, the hurt also may extend to the child. Therefore by these occasions the tender bones may bee broken, wrested, strained, or depraved after some other monstrous manner; and more, by the like violence of such things, a veine is often opened or broken, or a fluxe of blood, or great vomiting is caused by the vehement concussion of the whole body, by which meanes the childe wants nourishment, and therefore will be small and little, and altogether monstrous.

CHAP. XI.

Of monsters which have their originall by reason of hereditary diseases.

By the injury of hereditary diseases, infants grow monstrous, that is, monstrously deformed: for crooke-backt produce crooke-backt, and often times so crooked, that betweene the bunch behind and before, the head lies hid, as a Tortoise in her shell: so lame produce lame, flat nosed their like, dwarfes bring forth dwarfes, leane bring forth leane, and fat produce fat.

CHAP. XII.

Of monsters by the confusion of seed of divers kindes.

That which followeth is a horrid thing to be spoken; but the chaste minde of the Reader will give mee pardon, and conceive that, which not onely the Stoikes, but all Philosophers, who are busied about the search of the causes of things, must hold, That there is nothing obscene or filthy to be spoken. Those things that are accounted obscene may bee spoken without blame, but they cannot bee acted or perpetrated without great wickednesse, fury and madnesse; therefore that ill which is in obscenity consists not in word, but wholly in the act. Therefore in times past there have beene some, who nothing fearing the Deity, neither Law, nor themselves, that is, their soule, have so abjected and prostrated themselves, that they have thought themselves nothing different from beasts: wherefore Atheists, Sodomites, Out-lawes, forgetfull of their owne excellency and divinity, & transformed by filthy lust, have not doubted to have filthy and abominable copulation with beasts. This so great, so horrid a crime, for whose expiation all the fires in the world are not sufficient, though they, too maliciously crafty, have concealed, and the conscious beasts could not utter, yet the generated mis-shapen issue hath abundantly spoken and declared, by the unspeakable power of God, the revenger and punisher of such impious & horrible actions. For of this various and promiscuous confusion of seedes of a different kinde, monsters have beene generated and borne, who have beene partly men and partly beasts.

The like deformity of issue is produced, if beasts of a different species doe copulate together, nature alwaies affecting to generate something which may bee like it selfe: for wheat growes not but by sowing of wheat, nor an apricocke but by the setting or grafting of an apricocke; for nature is a most diligent preserver of the species of things.

The effigies of a monster halfe man and halfe dogge.



Anno Dom. 1493. there was generated of a woman and a dogge, an issue, which from the navell upwards perfectly resembled the shape of the mother, but therehence downewards the fire, that is, the dogge. This monster was sent to the Pope that then reigned, as Volaterane writeth: also Cardane mentions it; wherefore I have here given you the figure thereof.

*Card. lib. 14. de
var. rerum cap.
64.*

Calius Rhodiginus writes that at *Sibaris*, a heards-man called *Chrathis* fell in love with a Goat, and accompanied with her, and of this detestable and brutish copulation an infant was born, which in legges resembled the damme, but the face was like the fathers.

The figure of a monster in face resembling a man, but a Goat in his other members.



Anno Dom. 1110. In a certaine towne of *Liège* (as saith *Eycosthenes*) a sow farrowed a pig with the head, face, hands, and feet of a man, but in the rest of the body resembling a swine.

The figure of a pigge, with the head, face, hands, and feet of a man.



Anno Dom. 1564. at *Bruxels*, at the house of one *Joest Dietzpeert*, in the street *Warmoesbroecks*, a sow farrowed sixe pigs, the first whereof was a monster representing a man in the head, face, fore feet and shoulders, but in the rest of the body another pigge, for it had the genitalls of a sow pigge, and it sucked like the other pigs. But the second day after it was farrowed, it was killed of the people together with the sow, by reason of the monstrosnesse of the thing. Here followeth the figure thereof.

The effigies of a monster halfe man and halfe swine.



Anno Dom. 1571. at Antwerpe, the wife of one Michaell a Printer, dwelling with one John Molline a Graver or Carver, at the signe of the Golden Foot, in the Camistrate, on St. Thomas his day, at ten of the clocke in the morning, brought forth a monster wholly like a dogge, but that it had a shorter necke, and the head of a bird, but without any feathers on it. This monster was not alive, for that the mother was delivered before her time; but she giving a great scritch in the instant of her deliverance, the chimney of the house fell downe, yet hurt nobody, no not so much as any one of foure little children that sate by the fire side.

The figure of a monster like a dogge, but with a head like a bird.



Lewis Cellens writeth that hee hath read in an approved author, that an Ewe once brought forth a Lion, a beast of an unlike and adverse nature to her.

Anno Dom. 1577. in the towne Blandy, three miles from Melon, there was lambed a Lambe, having three heads, the middlemost of which was bigger than the rest, when one bleated they all bleated. John Bellanger the Chirurgian of Melon affirmed that hee saw this monster, and he got it drawne, and sent the figure thereof to mee, with that humane monster that had the head of a Frogge, which we have formerly described.

The figure of a three-headed Lambe.



There are some monsters in whose generation by this there may seeme to be some divine cause, for that their beginnings cannot be derived or drawne from the generall cause of monsters, that is, nature, or the errors thereof, by reason of some of the forementioned particular causes: such are these monsters that are wholly against all nature, like that which we formerly mentioned, of a Lion yeaned by an Ewe.

Yet Astrologers (lest there should seeme to be any thing which they are ignorant of) referre the causes of these to certaine constellations and aspects of the Planets and Stars, according to *Aristotles* saying in his *Problemes*; in confirmation whereof they tell this tale. It happened in the time of *Albertus Magnus*, that in a certaine village, a Cow brought forth a Calf, which was halfe a man: the townsmen apprehended the heards-man, and condemned him as guilty of such a crime, to be presently burnt together with the cow; but by good lucke *Albertus* was there, to whom they gave credit by reason of his much and certaine experience in Astrologie, that it was not occasioned by any humane wickednesse, but by the efficacy of a certaine position of the starres, that this monster was borne.

CHAP. XIII.

Of monsters occasioned by the craft and subtilty of the Devill.



N treating of such monsters as are occasioned by the craft of the Devill, wee crave pardon of the courteous Reader, if peradventure going further from our purpose, wee may seeme to speake more freely and largely of the existence, nature, and kindes of Devills. Therefore first it is manifest that there are Conjurers, Charmers, and Witches, which whatsoever they do, performe it by an agreement & compact with the Devill, to whom they have

There are for-
cerers, and how
they come to
be.

addicted themselves: for none can be admitted into that society of Witches, who

0000

hath

What induceth
them thereto.

hath not forsaken God the Creator, and his Saviour, and hath not transferred the worship due to him above, upon the Devill, to whom he hath obliged himselfe. And assuredly, whosoever addicts himselfe to these magicall vanities and witch-crafts, doth it, either because hee doubts of Gods power, promises, study and great good will towards us : or else for that hee is madded with an earnest desire of knowing things to come ; or else because disdaining poverty, hee affects and desires from a poore estate to become rich on the sodaine. It is the constant opinion of all, both ancient and modern, as well Philosophers as Divines, that there are some such men ; which when they have once addicted themselves to impious and divellish arts, can by the wondrous craft of the Divell, doe many strange things, and change and corrupt bodies, and the health & life of them, and the condition of all mundane things. Also experience forceth us to confesse the same, for punishments are ordained by the lawes against the professors and practisers of such arts ; but there are no lawes ordained against those things which neither ever have beene, nor ever came into the knowledge of men : for such things are rightly judged and accounted for impossibilities, which have never beene seene nor heard of.

Exod. cap. 22.
Levit. cap. 19.

Before the birth of Christ there have beene many such people, for you may finde in *Exodus* and *Leviticus* lawes made against such persons by *Moses*, by whom God gave the law to his people. The Lord gave the sentence of death to *Ochafias* by his Prophet, for that he turned into these kinde of people. We are taught by the scriptures that there are good and evill spirits, and that the former are termed Angells, but the latter Devills ; for the law is also said to be given by the ministry of Angells, and it is said that our bodies shall rise againe at the sound of a trumpet, and the voice of an Arch-angell. Christ said that God would send his Angells to receive the elect into the heavens.

Hebr. 1. 14.
Galat. 3. 19.
1 Thes. 4. 16.

John 13.
Mar. 26. 34.

The historie of *Job* testifieth that the Devill sent fire from heaven, and killed his sheep and cattell, and raised winds that shooke the foure corners of the house, and overwhelmed his children in the ruines thereof. The history of *Achab* mentioneth a certaine lying spirit in the mouth of the false Prophets. *Sathan* entring into *Judas*, moved him to betray Christ. Devils, who in a great number possessed the body of a man, were called a Legion, and obtained of Christ that they might enter into swine, whom they carried headlong into the Sea.

The power of
evill spirits o-
ver mankind.

The differences
of devills.

In the beginning God created a great number of Angells, that those divine and incorporeall spirits might inhabite heaven, and as messengers, signifie Gods pleasure to men, and as ministers or servants, performe his commands, who might be as overseers and protectors of humane affaires. Yet of this great number there were some who were blinded by pride, and thereby also cast downe from the presence, and heavenly habitation of God the creator. These harmefull and crafty spirits delude mens mindes by divers juggling trickes, and are alwaies contriving something to our harme, and would in a short space destroy mankind, but that God restraines their fury ; for they can onely doe so much as is permitted them : Expelled heaven, some of them inhabite the aire, others, the bowels of the earth, there to remaine untill God shall come to judge the world : and as you see the clouds in the aire sometimes to resemble centaures, otherwhile serpents, rocks, towers, men, birds, fishes, and other shapes : so these spirits turne themselves into all the shapes and wondrous formes of things ; as oft times into wild beasts, into serpents, toads, owles, lapwings, crows or ravens, goats, asses, dogs, cats, wolves, buls, and the like. Moreover, they oft times assume and enter humane bodies, as well dead as alive, whom they torment and punish, yea also they transforme themselves into angells of light.

The delusions
of devills.

They feigne themselves to bee shut up and forced by magicall rings, but that is onely their deceit and craft, they wish, feare, love, hate, and oft times as by the appointment and decree of God they punish malefactors : for we read that God sent evill angels into Egypt, there to destroy. They houle on the night, they murmur & rattle, as if they were bound in chaines, they move benches, tables, counters, props, cupboards, children in the cradles, play at tables and chesse, turne over books, tell mony, walk up & down roomes, and are heard to laugh, to open windowes & dores, cast sounding vessels, as brasie and the like, upon the ground, breake stone pots and glasses,

glasses, and make other the like noises. Yet none of all these things appeare to us when as wee arise in the morning, neither finde we any thing out of its place or broken. They are called by divers names; as, Devills, evill Spirits, *Incubi*, *Sucubi*, Hobgoblins, Fairies, Robin-good-fellowes, evill Angels, Sathan, Lucifer, the father of lies, Prince of darkenesse and of the world, Legion, and other names agreeable to their offices and natures.

Their titles & names.

CHAP. XIV.

Of the subterrene Devills, and such as haunt Mines.



Ewis Lavater writes, that by the certaine report of such as worke in Mines, that in some Mines there are seene spirits, who in the shape and habite of men, worke there, and running up and down seeme to doe much worke, when as notwithstanding they doe nothing indeed. But in the meane time they hurt none of the bystanders, unlesse they bee provoked thereto by words, or laughter. For then they will throw some heavie or hard thing upon him that hurt them, or injure them some other way.

What the devills in Mines doe.

The same author affirms that there is a silver Mine in *Rhetia*, out of which *Peter Brot*, the Governour of the place, did in his time get much silver. In this Mine there was a Devill, who chiefly on Frie-dayes, when as the Miners put the minerall they had digged into tubbes, kept a great quarter, and made himselfe exceeding busie, and poured the minerall, as he listed, out of one tubbe into another. It happened one day that he was more busie than he used to be, so that one of the Miners reviled him, and bad him bee gone on a vengeance to the punishment appointed for him. The Devill offended with his imprecation and scoffe, so wrested the Miner, taking him by the head, that twining his necke about, hee set his face behinde him, yet was not the workman killed therewith, but lived, and was known by divers for many yeeres after.

CHAP. XV.

By what meanes the Devills may deceive us.



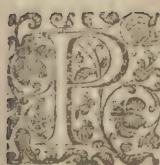
Ur mindes involved in the earthy habitation of our bodies, may bee deluded by the Devills divers waies; for they excell in purity and subtilty of essence, and in the much use of things: besides, they challenge a great preheminance, as the Princes of this world, over all sub-lunary bodies. Wherefore it is no marvell if they, the teachers and

Devills are spirits, and from eternity.

parents of lyes, should cast clouds and mists before our eyes from the beginning, & turne themselves into a thousand shapes of things and bodies, that by these juglings and trickes they may shadow and darken mens mindes.

CHAP. XVI.

Of Sucubi and Incubi.



Powerfull by these forementioned arts and deceipts, they have sundry times accompanied with men in copulation, whereupon such as have had to doe with men, were called *Sucubi*, those which made use of women, *Incubi*. Verily *St. Augustine* seemeth not to be altogether against it, but that they, taking upon them the shape of man, may fill the geni-

The reason of the name.
Lib. 5 de civit Dei, cap. 22.
talls

talls, as by the helpe of nature, to the end, that by this meanes they may draw aside the unwary, by the flames of lust, from vertue and chastity.

A history.

John Ruess in his book of the conception and generation of man, writes that in his time, a certaine woman of monstrous lust, and wondrous impudency, had to doe by night with a Divell, that turned himselfe into a man, and that her belly swelled up presently after the act; and when as she thought shee was with childe, she fell into so grievous a disease, that shee voided all her entrailes by stoole, medicines nothing at all prevailing.

Another.

The like history is told of the servant of a certaine Butcher, who thinking too attentively on venereous matters, a Divell appeared to him in the shape of a woman, with whom (supposing it to bee a woman) when as hee had to doe, his genitalls so burned after the act, that becomming enflamed, hee died with a great deale of torment.

An opinion
confuted.

Neither doth *Peter Paludanus*, and *Martin Arelatensis* thinke it absurd to affirme that Devills may beget children, if they shall ejaculate into the womans womb seed taken from some man, either dead or alive. Yet this opinion is most absurd and full of falsitie, mans seed consisting of a seminall or sanguineous matter, and much spirit: if it runne otherwaies than into the wombe from the testicles, and stay never so little a while, it loseth its strength and efficacy, the heat and spirits vanishing away; for even the too great length of a mans yard, is reckoned amongst the causes of barrenness, by reason that the seed is cooled by the length of the way. If any in copulation, after the ejaculation of the seed, presently draw themselves from the womans embraces, they are thought not to generate, by reason of the aire entring into the yet open womb, which is thought to corrupt the seed. By which it appeares how false that history in *Averrois* is, of a certaine woman that said she conceived with child by a mans seed shed in a bath, and so drawne into her wombe, she entring the bath presently after his departure forth. It is much lesse credible that Divells can copulate with women, for they are of an absolute spirituous nature, but blood and flesh are necessary for the generation of man. What naturall reason can allow that the incorporeall Divells can love corporeall women? And how can we thinke that they can generate, who want the instruments of generation? How can they who neither eate nor drinke be said to swell with seed? Now where the propagation of the species is not necessary to bee supplied by the succession of Individuals, Nature hath given no desire of ventry, neither hath it impaired the use of generation; but the divels once created were made immortall by Gods appointment: If the faculty of generation should be granted to devills, long since all places had beene full of them. Wherefore if at any time women with childe by the familiarity of the devill, seeme to travell, we must thinke it happens by those arts we mentioned in the former chapter, to wit, they use to stuffe up the bodies of living women with old clouts, bones, peeces of iron, thornes, twisted haire, peeces of wood, serpents, and a world of such trumpery, wholly dissenting from a womans nature: who afterwards, the time, as it were, of their delivery drawing nigh, through the wombe of her that was falsly judged with child, before the blinded, and, as it were, bound up eyes of the by-standing women, they give vent to their impostures. The following history, recorded in the writings of many most credible authors, may give credit hereto.

Averrois his
history convict
of falshood.

The illusions
of the devills.

A history.

There was at *Constance* a faire damosell called *Margaret*, who served a wealthy Citizen: she gave it out every where that she was with child by lying with the devill on a certaine night. Wherefore the Magistrates thought it fit she should bee kept in prison, that it might bee apparent both to them and others, what the end of this exploit would bee. The time of deliverance approaching, shee felt paines like those which women endure in travell; at length, after many throwes, by the midwives helpe, in stead of a childe, shee brought forth iron nailes, peeces of wood, of glasse, bones, stones, haire, towe, and the like things, as much different from each other, as from the nature of her that brought them forth, and which were formerly thrust in by the devill to delude the too credulous mindes of men.

Our sins are
the cause that
the devils abuse
us.

The Church acknowledgeth that devils, by the permission and appointment of God punishing our wickednesse, may abuse a certaine shape, so to use copulation with

with mankind. But that a humane birth may thence arise, it not onely affirmes to bee false, but detests as impious, as which beleeves that there was never any man begot without the seed of man, our Saviour Christ excepted. Now what confusion and perturbation of creatures should possesse this world (as *Cassianus* saith) if divells could conceive by copulation with men? or if women should prove with childe by accompanying them, how many monsters would the divells have brought forth from the beginning of the world? how many prodigies by casting their seed into the wombes of wilde and brute beasts? for by the opinion of Philosophers, as often as faculty and will concur, the effect must necessarily follow: now the Devils never have wanted will to disturbe mankind, and the order of this world: for the devill, as they say, is our enemy from the beginning; and as God is the author of order, and beauty, so the devill, by pride, contrary to God, is the cause of confusion and wickednesse.

Wherefore if power should accrew equall to his evill minde and nature, and his infinite desire of mischief and envie, who can doubt but a great confusion of all things and species, and also great deformity would invade the decent and comely order of this universe, monsters arising on every side? But seeing that devills are incorporeall, what reason can induce us to beleve that they can be delighted with venereous actions? and what will can there be where as there is no delight, nor any decay of the species to be feared? seeing that by Gods appointment they are immortal, so to remaine for ever in punishment: so what need they succession of individuals by generation? wherefore if they neither will nor can, it is a madnesse to thinke that they doe commixe with man.

CHAP. XVII.

Of Magicke and supernaturall diseases and remedies.



That I may refresh the mind of the Reader, invited to these histories of monsters, raised up by the art of the divell, witches, and conjurers, his servants, I have thought good to add the following histories of certaine diseases, and remedies supernaturall, and wholly magicall, out of *Fernelius*. There are diseases, which as they are sent amongst men by God being offended, so they cannot expect cure otherwise than from God, from whence they are thought supernaturally to have their essence and cure. Thus the aire oft-times, yet chiefly in the time of King *David*, being defiled with the pestilence, killed sixty oddethousand persons.

Lib. 2. de abdit. caus. cap. 16.

Thus *Ezechias* was stricken with a grievous disease: *Job* was defiled with filthy ulcers by Sathan at Gods command. And as the Devill, the cruell enemy of mankind, commonly useth by Gods permission to afflict those, so wicked persons by the wondrous subtilty of the devill, offer violence, and doe harme to many. Some invoke I know not what spirits, and adjure them with herbes, exorcismes, imprecations, incantations, charmes: others hang about their neckes, or otherwise carry certaine writings, characters, rings, images, and other such impious stuffe. Some use songs, sounds or numbers: sometimes potions, perfumes, and smells: sometimes gestures and juggling. There be some that make the portraiture of the absent party in waxe, and boast that they can cause or bring a disease into what soever part thereof they prick, by the force of their words and starres, into the like part of the party absent; and they have no few other trickes to bring diseases.

Witches hurt by the devills assistance.

We know for certain that magicians, witches, and conjurers, have by charmes so bound some, that they could not have to do with their wives; and have made others so impotent, as if they had bin gelt or made eunuches. Neither do wicked men onely send diseases into mans body, but also devills themselves. These truly are soone distracted with a certain fury, but in this one thing they differ from simple madnesse, for that they speake things of great difficulty, tell things past and hid, disclose the

secrets of such as are present, and revile them many waies, and are terrified, tremble or grow angry by the power of divine words.

A history.

One not very long ago, being by reason of heat exceeding dry in the night time, rising out of his sleep, and not finding drinke, took an apple that he found by chance, and eating it, he thought his jawes were shut and held fast as by ones hands, and that he was almost strangled: and also, now possessed of a Devill entring into him, hee seemed in the darke to bee devoured of a huge exceeding blacke dogge, which hee, afterwards restored to his former health, orderly related to me. There were divers, who by his pulse, heat, and the roughnesse of his tongue, thought him to be in a fever, and by his watching, and the perturbation of his minde, thought him onely to rave.

A history.

Another young Noble-man, some few yeeres since, was troubled at set times with a shaking of the body, and as it were, a convulsion, wherewith one while hee would move onely his left arme, another while the right arme, and also sometimes but one finger onely, somewhiles but one legge, sometimes the other, and at other times the whole trunk of his body, with such force and agility, that lying in his bed he could scarce be held by foure men; his head lay without any shaking, his tongue and speech was free, his understanding sound, and all his senses perfect even in the height of his fit. He was taken at the least ten times a day, well in the spaces between, but wearied with labour: it might have beene judged a true Epilepsie, if the understanding and senses had failed.

The most judicious Physitians who were called to him, judged it a convulsion, cosen-germane to the falling sicknesse, proceeding from a malignant and venomous vapour impact in the spine of the backe, whence a vapour disperfed it selfe over all the nerves, which passe from the spine every way into the limbes, but not into the braine. To remove this, which they judged the cause, frequent glysters are ordained, and strong purges of all sorts, cupping glasses are applied to the beginnings of the nerves, fomentations, unctions, emplaisters, first to discusse, then to strengthen and weare away the malignant quality: These things doing little good, he was sweated with bathes, stoves, and a decoction of *Guajacum*, which did no more good than the former, for that wee were all farre from the knowledge of the true cause of his disease: for in the third moneth, a certaine Devill was found to be the author of all this ill, bewraying himselfe by voice, & unaccustomed words and sentences, as well latine as greeke (though the patient were ignorant of the greeke tongue): he laied open many secrets of the by-standers, but chiefly of the Physitians, deriding them for that hee had abused them to the patients great harme, because they had brought his body so low by needlesse purgations.

The devill shewes himselfe by speaking of greeke.

When his father came to visite him, he would cry out long before he came at him, or saw him, drive away this visitant, & keep him from comming in here, or else pluck his chaine from about his necke: for on this (as it is the custome of the French order of Knights) there hangs the image of St. *Michael*. If holy or divine things were read before him, he shooke and trembled more violently. When his fit was over, hee remembered all that he had done, and affirmed that hee did it against his will, and that he was sorry for it. The devill, forced by ceremonies and exorcismes, denied that he was damned for any crime, and said that he was a spirit: being asked who he was, and by what meanes and power he did these things, he said that hee had many habitations into which hee could betake him selfe, and in the time of his rest, hee could torment others: that he was cast into this body by a certain person whom he would not name, and that he entred by his feet up to his necke, and that he would go forth againe the same way, when as his appointed time was come. He spoke of sundry other things, as others which are possessed use to doe.

Devils wax angry, and are terrified by divine things.

Now I speake not these things as new or strange, but that it may appeare that devills sometimes entring into the body, doe somewhiles torment it by divers and uncouth waies; other whiles they doe not enter in, but either agitate the good humours of the body, or draw the ill into the principall parts, or with them obstruct the veins or other passages, or change the structure of the instruments, from which causes innumerable diseases proceed: of these, Divells are the authors, and wretched and forlorne

lorne persons the ministers : and the reason of these things is beyond the search of nature.

Pliny tells that the Emperour *Nero* in his time, found magicall arts most vain and false: but what need we alledge profane writers, when as those things that are recorded in scripture of the pythonisse, of the woman speaking in her belly, of King *Nebuchodonozor*, of the Magirians of *Pharaoh*, and other such things not a few, prove that there both is, and hath beene Magicke? *Pliny* tells of *Denarchus*, that he tasting of the entrailles of a sacrificed childe, turned himselfe into a Wolfe. We read in *Homer* that *Circes*, in the long wandering of *Ulysses*, changed his companions into beasts, with an enchanted cuppe or potion: and in *Virgil*, that the growing corne may be spoiled or carried away by enchantments: which things, unlesse they were approved and witnessed by many mens credits, the wisdom of Magistrates and Lawyers, would not have made so many Lawes against Magitians, neither would there have beene a mulct imposed upon their heads by the law of the twelve tables, who had enchanted other mens corne. But as in magicall arts the devill doth not exhibite things them selves, as those which he cannot make, but onely certaine shewes or appearances of things: so in these which are any wayes accommodated to the use of Physicke, the cure is neither certaine, nor safe, but deceitfull, captious, and dangerous.

I have seene the Jaundise, over the whole body, cured in one night, by a written scroule hanged about the neck: also I have seene Agues chaled away by words and such ceremonies, but within a short while after they returned againe and became much worse. Now there are some vaine things, and verily the fancies of old women, which because they have long possessed the minds of men, weakened with too much superstition, we terme them superstitious. These are such as we cannot truely say of them, wherefore and whence they have the faculties ascribed to them: for they neither arise from the temperament, neither from other manifest qualities, neither from the whole substance, neither from a divine or magicall power, from which two last mentioned, all medicines beyond nature, and which are consequently to be used to diseases, whose essence are supernaturall, must proceed. Such like old wives medicines and superstitious remedies are written figures and characters, rings, where neither the assistance of God or Spirits is implored. Let me aske you, is it not a superstitious medicine to heale the falling sicknesse, to carry in writing the names of the three Kings, *Gaspas*, *Melchior*, and *Balthasar*, who came to worship Christ? To help the tooth ache, if one whilst Masse is in saying, touch his teeth, saying these words, *Os non comminuetis ex eo*? To stay vomiting with certaine ceremonies and words, which they absent pronounce, thinking it sufficient if that they but onely know the patients name.

It is but a deceitfull cure that is performed by the devill.

Old wives superstitious medicines against divers diseases.

I saw a certaine fellow that with murmuring a few words, and touching the part, would stanch blood out of what part soever it flowed: there be some who to that purpose say this, *De latere ejus exivit Sanguis & Aqua*. How many prayers or charmes are carried about to cure agues? some taking hold of the patients hand, say, *Æquè facilis tibi Febris hac sit, atque Maria virgini Christi partus*. Another washeth his hands with the patient before the fit, saying to himselfe that solemne Psalm, *Exaltabo te Deus meus Rex*, &c. If one tell an Asse in his eare that hee is stung by a Scorpion, they say that the danger is immediately over.

As there are many superstitious words, so there are many superstitious writings also. To helpe sore eyes, a paper wherein the two greeke letters, Π and Λ , are written must bee tyed in a thred, and hanged about the necke. And for the tooth ache this ridiculous saying, *Strigiles, falcesque dentata, dentium dolorem persanate*. Also oft times there is no small superstition in things that are outwardly applied. Such is that of *Apollonius* in *Pliny*, to scarifie the gummes in the tooth ache with the tooth of one that died a violent death: to make pils of the skull of one hanged, against the bitings of a mad dogge: to cure the falling sicknesse by eating the flesh of a wilde beast, killed with the same iron wherewith a man was killed: that he shall be freed from a quartaine ague who shall drinke the wine whereinto the sword that hath cut off a mans head, shall be put: and he, the parings of whose nailes shall be tyed in a linnen cloath

Lib. 6. de semp.

cloth to the necke of a quicke Eele, and the Eele let goe into the water againe. The paine of the Milt to be asswaged, if a beasts Milt bee laid upon it, and the Physitian say that he cures or makes a medicine for the Milt. Any one to bee freed from the cough, who shall spit in the mouth of a Toad, letting her goe away alive. The halter wherein one hath beene hanged put about the temples, to helpe the headache. This word *Abacadabra*, written on a paper, after the manner described by *Serenus*, and hanged about the necke, to help agues or feavers, especially semitertians. What truth can bee in that which sundry affirme, that a leafe of *Lathyrus*, which is a kinde of Spurge, if it be plucked upwards, will cause vomit, but broken downwards, will move to stoole? You may also finde many other superstitious fictions concerning herbes, such as *Galen* reports that *Andreas* and *Pamphilus* writ, as incantations, transformations, and herbes dedicated to conjurers and devills.

I had thought never in this place to have mentioned these and the like, but that there may bee every where found such wicked persons, who leaving the arts and means, which are appointed by God to preserve the health of mans body, flye to the superstitious & ridiculous remedies of forcerers, or rather of devils, which notwithstanding the devill sometimes makes to performe their wisht for effects, that so hee may still keep them ensnared & addicted to his service. Neither is it to be approved which many say, that it is good to be healed by any art or meanes, for that healing is a good worke. This saying is unworthy of a Christian, and savours rather of him that trusts more in the devill than in God. Thole Empericks are not of the society of Sorcerers and Magitians, who heale simple wounds with dry lint, or lint dipt in water: this cure is neither magicall nor miraculous, as many suppose, but wholly naturall, proceeding from the healing fountains of nature, wounds & fractures, which the Chirurgian may heale by onely taking away the impediments, that is, paine, defluxion, inflammation, an abscesse and gangrene, which retard and hinder the cure of such diseases. The following examples will sufficiently make evident the devills maliciousnesse, alwaies wickedly and craftily plotting against our safety and life.

Lib. epist. 38. ep.

A certaine woman at *Florence* (as *Langius* writes) having a malignant ulcer, and being troubled with intolerable paine at the stomacke, so that the Physitians could give her no ease: behold on a sudden shee vomited up long and crooked nailes, and brasse needles, wrapped up with wax and haire, and at length a great gobbit of flesh, so bigge that a Giants jawes could scarce swallow it.

But that which happened in the yeere of our redemption 1539. in a certain town called *Fugenstall*, in the Bishopricke of *Eistet*, exceeds all credit, unlesse there were eye-witnesses of approved integrity yet living. In this towne, one *Ulrich Neussesser* a husbandman, was tormented with grievous paine in the one side of his belly, hee sodainely got hold of an iron key with his hand under the skinne, which was not hurt, the which the Barber. Chirurgian of the place cut out with his razour; yet for all this the paine ceased not, but hee grew every day worse than other: wherefore expecting no other remedy but death, he got a knife and cut his throat. His dead body was opened, and in his stomacke were found a round and longish piece of wood, foure Steele knives, part sharpe, and part tooched like a saw, and two sharpe pices of iron, each whereof exceeded the length of a spanne, there was also as it were a ball of haire. All these things were put in by the craft and deceit of the devill. Thus farre *Langius*.

CHAP. XVIII.

Of the Cozenages and crafty Trickes of Beggars.



Having treated of Monsters, it followes that wee speake of those things which either of themselves, by reason of their nature full of admiration, have some kinde of monstrosnesse in them; or else from some other waies, as by the craft and cozenage of men. And because to the last mentioned crafts of the Devill, the subtle devices of begging companions are somewhat alike,

alike,

alike, therefore I will handle them in the next place, that the Chirurgian being admonished of them, may be more cautious and cunning in discerning them when hee meets with them.

Anno Dom. 1525. when I was at *Anjou*, there stood a crafty beggar begging at the Church dore, who tying and hiding his owne arme behind his backe, thewed in steed thereof, one cut from the body of one that was hanged, and this he propped up and bound to his breast, and so laid it open to view, as if it had been all enflamed, so to move such as passed by unto greater commiseration of him. The cozenage lay hid, every one giving him mony, untill at length his counterfeit arm not being surely fastened, fell upon the ground, many seeing and observing it: hee being apprehended and layed in prison, by the appointment of the Magistrate, was whipped through the towne, with his false arme hanging before him, and so banished.

A history of a counterfeit arme.

I had a brother called *John Parey*, a Chirurgian, who dwelt at *Vitre* in *Britany*; he once observed a young woman begging, who shewed her breast, as if it had a cancerous ulcer thereon, looking fearfully by reason of much and sordid filth, wherewith it seemed to defile the cloath that lay under it. But when as hee had more diligently beheld the womans face, and the fresh colour thereof, as also of the places about the ulcer, and the good habite of the whole body agreeable to that colour (for she was somewhat fat, and of a very good habite of body) he was easily hereby induced to suspect some roguery and deceit. He acquainted the Magistrate with this his suspicion, and got leave that hee might carry her home to his house, so to search her more narrowly. Where opening her breast, he found under her arme-pit, a sponge moistened with a commixture of beasts blood and milke, and carried through an elder pipe to the hidden holes of her counterfeit cancer. Therefore he fomented her breast with warme water, and with the moisture thereof looseth the skinned of blacke, Greene, and yellow frogges, laid upon it, and stucke together with glew, made of bole armonick, the white of an egge, and flower; and these being thus fetched off, he found her breast perfectly sound.

Another of a cancerous breast

The beggar being cast for this into prison, confessed that shee was taught this trick by a beggar that lay with her, who himselfe also, by putting about his legge an oxes Milt, and perforating it in sundry places, that so the forementioned liquor might drop out, counterfeited an ulcer of a monstrous bignesse and malignity, covering the edges of the Milt on every side with a filthy cloath. This beggar was diligently enquired after, but could not bee found; and so shee was whipped and banished.

A counterfeit ulcer of the leg

Within lesse than a yeere after there came into the same city another notable crafty companion, who presently taking up the church doores, laid open his wares, to wit, a Kercher with some small pieces of mony lying thereon, a wooden Barrell, and * Cliquets, wherewith he would ever now and then make a great noise: his face was spread over with great thicke pustles, being of a blackish red colour, and made with glew like those that have the Leprosie: this his ghastly look made him to be pitted by all men, which was the cause that every one gave him mony. Then my brother came somewhat nearer him, and asked him how long hee had bene troubled with this so cruell disease; hee answered with an obscure and hoarse voice, that hee was borne a Leper from his mothers wombe, and that his parents both died of this wicked disease, so that their members fell away piece-meale. Now hee had a woollen swathe about his chapps, wherewith (having his left hand under his cloake) hee so straitened his chapps, that much blacke blood rose into his face, and made him so hoarse that he could scarce speake; yet hee could not containe himselfe, but that in speaking hee ever now and then slackened the swathe with his hand, the freelier to draw his breath: which when my brother had observed, suspecting some cozenage, he obtained leave of the Magistrate to search and examine the man whether hee were truly leprous, or no. First therefore he tooke away his swathe or rowler that was about his necke, then washed his face with warme water, so that the counterfeit glewed pustles were dissolved, and his face, free from all tainture, shewed it selfe of a good and naturall colour and shape. Then he laid bare his whole body, and diligently viewed each part, and found no signe of a leprosie, one or other. Which

Of one feigning himselfe leprous.

* Cliquets are things made somewhat resembling a small wool-card, but have two or three little pieces of boards so fastened together with leather, that they will make a great noise with them, and these are used by the French beggars.

when

when the Magistrate once heard, he made him to bee put in prison, and to be thrice whipped through the streets of the city, with his barrell hanging before him, and his cliquets behind him, adding thereto the punishment of perpetuall banishment. It happened that as hee was whipped the third market day, the people cryed out to the hang-man in jest, that he should not feare to lash him soundly, for being leprous he could not feele it: the executioner incited by this cry of the people, did so belabour him, that the wretch died of his whipping within a short while after, having a just reward for his wickedness. For these impostors, besides that they live like drones, feigning this or that disease, and so being idle, enjoy the fruits of others labours; they also divers times conspiring together, take away the lives and goods of honest and substantiall citizens, and other people: for there are some of them, that in an evening, as men that have no habitation, desire lodging for a night, and it being granted them, they, when as the master of the house and his family are asleepe, open the doores to their comrades, men as wicked as themselves, and kill and carry away all they can.

A multitude of
beggars hurt-
full to the city.

Certainly we may justly affirme that this crafty begging is the mother and schoole of all dishonesty: for how many acts of bawdry and poisoning every where corrupt the wells and publicke fountaines? how many places have beene burnt under the shew of begging? where can you get more fit spies? where more fit undertakers and workers of all manner of villany, than out of the crew of these beggars?

How to disco-
ver such as
counterfeit the
Jaundise.

Some of them there are, who besmeare their faces with soot layed in water, so to seeme to have the Jaundise. But you may at the first sight find out the deceit, by the native whitenesse of the utter coat of the eye, called *Adnata*, which in such as truly have the Jaundise, useth to bee died and overcast with a yellowish colour; also you may be more certaine thereof, if you wet a cloath in water or spittle, and so rub the face, for the adventitious yellownesse will quickly vanish, and the true native colour shew it selfe.

Some there bee, who not content to have mangled, and filthily exulcerated their limbes with causticke herbs, and other cauteries; or to have made their bodies more swolne, or else leane, with medicated drinks; or to have deformed themselves some other way, but from good and honest Citizens, who have charitably relieved them, they have stolen children, have broken or dislocated their armes and legges, have cut out their tongues, have depressed the chest, or whole breast, that with these, as their owne children, begging up and downe the country, they may get the more reliefe, pitifully complaining that they came by this mischance by thunder, or lightning, or some other strange accident.

Lastly they part the kingdome amongst themselves as into Provinces, & communicate by letters one to another, what newes or new quaint devises there are to conceale or advance their roguery: to which purpose they have invented a new language onely knowne to themselves, so to discourse together and not bee understood by others. [We here vulgarly terme it *Canting*].

Of one coun-
terfeiting the
falling of
the fundament.

D^r. *Flecelle*, a Physitian of *Paris*, entreated me to beare him company to his country house at *Champigny*, foure miles from *Paris*. Where as soone as wee arrived, and were walking in the Court, there came presently to us a good lusty well flesht manly woman, begging almes for *St. Fiacre* sake, and taking up her coat and her smocke, shee shewed a great gut hanging downe some halfe a foot, which seemed as if it had hanged out of her fundament, whereout there dropped filth like unto *pus*, which had all stained her legges and smocke, most beastly and filthy to looke upon. *Flecelle* asked her how long she had beene troubled with this disease: she answered that it was foure yeeres since she first had it. Hence he easily gathered that she plaied the counterfeit: for it was not likely that such abundance of purulent matter came forth of the body of so well flesht and coloured a woman; for she would rather have been very leane and in a consumption. Wherefore provoked with just anger, by reason of the wickednesse of the deceit, he run upon her and threw her downe upon the ground, and trod her under his feet, and hit her divers blowes upon the belly, so that he made the gut which hung at her, to come away, and by threatning her with more grievous punishment, made her confesse the cozenage, and that it was not her gut, but

but of an oxe, which being filled with blood and milke, and tyed at both ends, shee put the one of them into her fundament, and let the filth flow forth at very little holes.

Not very long agoe, a woman equally as shamelesse, offered herselfe to the overseers of the poore of *Paris*, entreating that she might be entred for one of their Pensioners, for that her wombe was fallen downe by a dangerous and difficult birth, wherefore she was unable to worke for her living. Then they commanded that shee should be tryed and examined, according to the custome, by the Chirurgians which are therefore appointed. Who seeing how the whole businesse was carried, made report she was a counterfeite; for she had thrust an oxes bladder, halfe blown and besmeared with beastly blood by the neck, whereto she had fastned a little sponge, into the necke of her wombe, for the sponge being filled and swollen up by the accustomed moisture of the wombe, so held up the oxes bladder that hanged thereat, that she might safely goe without any feare of the falling of it out, neither could it be pulled forth but with good force. For this her device shee was put into Prison, and being first whipped, was after banished. Their cozenage is not much unlike this, who by fitly applying a sheepes paunch to their groine, counterfeite themselves to bee bursten.

Of one faining the falling down of the wombe.

Anno Dom. 1561. there came to *Paris* a lusty, stout, and very fat Norman woman, being about some thirty yeeres old, who begging from doore to doore, did cast to meet with rich women, and very familiarly and pitifully would relate unto them her misfortune, saying she had a snake in her belly, which crept in at her mouth as shee slept in an hempe-land: shee would let one feele her stirre, by putting their hand unto her belly, adding also that she was troubled day & night with its uncessant gnawing of her guts. The novelty of this sad chance, moved all to pity & admiration, wherefore as much as they could, they assisted her with means & counsell. Amongst the rest, there was a woman of great devotion and charity, who sending for Dr. *Hollerius*, *Chevall*, and mee, asked us if this snake could by any meanes be gotten forth. *Hollerius* gave her a strong purgation, hoping that by stirring up the expulsive faculty, the serpent might be cast forth, together with the noxious humors. But this hope had no such successe. Wherefore when as we met againe, wee thought it fit to put a *Speculum matricis* into the necke of her wombe, so to see if we could discerne either her head or taile: but I making large dilatation of her womb, could see no such thing, onely wee observed a certaine voluntary motion, whereof shee her selfe was the author, by contracting and dilating the muscles of the lower belly. Which when as we had observed, perceiving the deceit and imposture, we thought good so to terrifie her and make her confesse the deceit, to tell her that shee must take another, but that a more strong purgation, that what wee could not doe by the former, as more gentle, we might attaine to by the latter, as farre stronger. She dissembling all feare, and conscious of her craft and dissimulation, after wee were gone in the evening, packing up her stufte, and a great deale more than her owne, she secretly stole away, not bidding her hostesse farewell: and thus at length the fraud was apparent, to the losse of the honest Gentlewoman. I saw this baggage, sixe daies after, sitting lustily upon a Packe-horse, at the gate *Mont-martre*, and laughing heartily with such as brought Sea-fish to towne; and shee was returning (as it was most likely) into her country, seeing her cozenage was discovered here.

Of a beggar that fained her selfe to have a snake in her belly.

Such as feigne themselves dumbe, draw backe and double their tongues in their mouths. Such as falling downe counterfeite the falling sicknesse, bind straitly both their Wreists with plates of iron, tumble and rowle themselves in the mire, sprinkle and defile their heads and faces with beasts blood, and shake their limbes and whole body. Lastly by putting sope into their mouths, they foame at the mouth like those that have the falling sicknesse. Other some with floure make a kind of glew, where-with they besmeare their whole bodies, as if they had that Leprosie or Scab, that is vulgarly termed, *Malum sancti manis*. Neither must we thinke this art of counterfeiting, and cheating begging to bee new, and of late invention, for long agoe it flourished in *Asia*, even in the time of *Hippocrates*, as may appeare by his booke *De Aëre, Locis, & Aquis*. But by how much this disease hath taken more deepe root, and

The craft of such as faine themselves to have the falling sicknesse.

Of such as faine themselves leproous.

growne

grown more inveterate by proceſſe of time, by ſo much it muſt more diligently and carefully bee looked to and prevented, by cruelly puniſhing ſuch counterfeits : for that by this fained begging, as the nourisher of ſloth and ſhoppe of all diſhoneſty, that which is raken from the good is beſtowed upon the ill, and one wicked & counterfeit beggar hurts all other wretched people.

CHAP. XIX.

Of ſtrange or monſtrous accidents in Diſeaſes.

Monſters happen alſo in diſeaſes.

A bullet ſhot into the belly came forth at the fundament.

That monſtrouſneſſe ſoever was in the laſt mentioned parties, it was made up by the craft of beggars for filthy gaine. But if there be any monſtrouſneſſe in the following narrations, it is of nature, but working, as it were, miraculoſly, by ſome ſecret and occult meanes ; for thus there are oft times monſters in diſeaſes. Before the towne of *St. John de Angeley*, a ſouldier called *Francis*, of the company of Captaine *Muret*, was wounded with a Harquebuze ſhot on the belly, betweene his navell and ſides ; the bullet was not taken out, becauſe the Chirurgi-ans, who ſearched him diligently, could not finde it : wherefore hee was troubled with grievous and tormenting paines, untill the ninth day after hee received the wound, the bullet came forth at his fundament : wherefore within three weekes after he was perfectly whole. Hee was healed by *Simon Crinay*, the Chirurgian of the French companies.

A bullet ſticking to the throat and patient recovering.

James Pope, Lord of *St. Albanes* in *Dauphine*, was wounded at the ſkirmiſh at *Chaſenay*, having three harquebuze bullets entring into his body, one whereof pierced under his throat, where it buncheth out as with a knot, neare to the pipe of his lungs, even to the beginning of the *vertebra* of the necke, in which place the leaden bullet ſtuck, and as yet doth remaine. Hereupon he was afflicted with many and fearful ſymptomes, as a feaver, and a great ſwelling of his whole necke, ſo that for ten whole daies he could ſwallow nothing but broaths and liquid things. Yet he recovered, and remaineth well at this preſent, by the cure of *James Dalam* the Chirurgian.

Lib. 3. anatom- cap 9.

A crooked iron ſhot into the back came forth at the fundament.

Alexander Benedictus makes mention of a certaine countie-man, who, ſhot into the backe with a dart, drawing out the ſhaft, the head was left behinde, being in length about the breadth of two fingers, but hooked and ſharpe on the ſides. When as the Chirurgian had carefully and diligently ſought for it, and could by no meanes finde it, he healed up the wound, but two months after this crooked head came forth at his fundament.

A ſwallowed needle voided by urine.

The ſame author telleth that at *Venice* a virgin ſwallowed a needle, which ſome two yceres after ſhe voided by urine, covered over with a ſtony matter, gathered about viſcous humours.

A needle running in at the buttocke came forth at the groine.

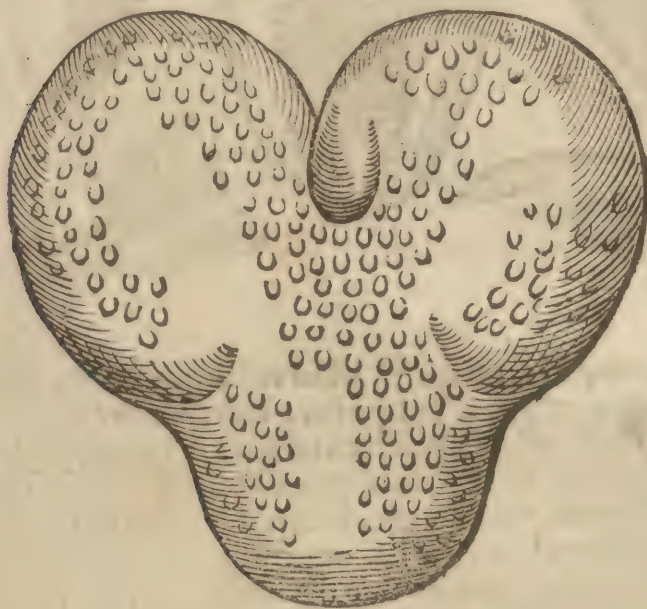
Catherine Perlan, the wife of *William Guerrier*, a Draper of *Paris*, dwelling in the Jewry, as ſhe rode on horſe-backe into the country, a needle out of her pin-cuſhion, which got under her by accident, ran ſo deepe into her right buttocke, that it could not by any art or force bee plucked forth. Foure moneths after ſhee ſent for mee to come to her, and ſhe told mee that as often as ſhe had to doe with her huſband, ſhee ſuffered extreme pricking paine in her right groine ; putting my hand thereto, as I felt it, my fingers met with ſomething ſharpe and hard : wherefore I uſed the matter ſo, that I drew forth the needle all ruſty : this may be counted a miracle, that ſteele, naturally heavie, ſhould riſe upwards, from the buttocke to the groine, and pierce the muſcles of the thigh, without cauſing an abſceſſe.

A needle in the miſt of a ſtone taken forth of the bladder.

Anno Dom. 1566. the two ſonnes of *Laurence Collo* (men excellent in cutting for the ſtone) tooke forth a ſtone of the bigneſſe of a wall-nut, in the miſt whereof was a needle, juſt like thoſe that ſhooc-makers uſe : the patients name was *Peter Cocquin*, dwelling in the ſtreet *Galand*, at the place called *Maubert* at *Paris*, and I thinke hee is yet living. This ſtone was ſhewed to King *Charles* the ninth, for the monſtrouſneſſe of the thing, I being then preſent, which being given me by the Chirurgian, I preſerve

preserve amongst my other rarities. *Anno Dom.* 1570. the Dutchesse of Ferrara at Paris, sent for *John Collo*, to take a stone out of a Confectioner. This stone, though it waighed nine ounces, and was as thicke as ones fist, yet was it happily taken out, the patient recovering, *Francis Roussel*, and *Joseph Javelle*, the Dutchesse Physitians, being present. Yet not long after this Confectioner died by the stoppage of his water, by reason of two other little stones, which about to descend from the kidneies to the bladder, stayed in the mid-way of the Ureters. The figure of the extracted stone was this.

The figure of a stone taken forth of the Bladder of a Confectioner.



Anno Dom. 1566. *Laurence Collo* the younger, tooke three stones out of the bladder of one dwelling at *Marly*, called commonly *Tire-vit*: becaule being troubled with the stone from the tenth yeere of his age, hee continually scratched his yard, each of the stones were as bigge as an Hens egge; of colour white, they all together waighed twelve ounces. When they were presented to King *Charles*, then lying at *Saint Maure des Faussez*, hee made one of them to bee broken with a hammer, and in the middest thereof there was found another, of a chesnut colour, but otherwise much like a Peach stone. These three stones, bestowed on mee by the brethren, I have here represented to the life.

The effigies of the three forementioned stones, whereof one is broken.



I have in the dissecting of dead bodies, observed divers stones, of various formes and figures, as of pigges, whelpes, and the like. *Dalechampius* telleth that hee saw a man, which by an abcess of his loins, which turned to a Fistula, voided many stones out of his kidneyes, and yet notwithstanding could endure to ride on horse-backe, or in a coach. *John Magnus*, the Kings most learned and skilfull Physitian, having incure a woman, troubled with cruell torment and paines of the belly and fundament, sent for me, that by putting a *Speculum* into the fundament, he might see if he could perceive any discernable cause of so great and pertinacious paine : and when as hee could see nothing which might further him in the finding out of the cause of her paine (following reason as a guide) by giving her often glysters and purgations, hee brought it so to passe, that shee at length voided a stone at her fundament of the bignesse of a Tennis ball : which once avoided, all her paines ceased.

A stone by the
use of pur-
ging medicines
voided by the
fundament.

5. Epid.

A stone com-
ing out of the
necke of the
wombe.

Hippocrates tells that the servant of *Dyseris* in *Larissa*, when shee was young, in using venery was much pained, and yet sometimes without paine, yet shee never conceived. But when as she was sixty yeeres old, she was pained in the after-noon as if she had beene in labour. When as she one day before noone had eaten many leekes, afterward shee was taken with a most violent paine, farre exceeding all her former, and she felt a certaine rough thing rising up in the orifice of her wombe. But she falling into a swoone, another woman putting in her hand, got out a sharpe stone of the bignesse of a whirle, and then she forthwith became well, and remained so.

Lib. 1. cap. de
palp. cond.

In a certaine woman, who, as *Hollerius* tells, for the space of foure moneths was troubled with an incredible paine in making water, two stones were found in her heart, with many abscesses, her kidneyes and bladder being whole.

Anno Dom. 1558. I opened in *John Bourlier* a Taylour, dwelling in the street of St. *Honoré*, a watry abscess in his knee, wherein I found a stone, white, hard, and smooth, of the thickenesse of an Almond ; which being taken out, hee recovered. Certainly there is no part of the body wherein stones may not breed and grow.

No part of the
body wherein
stones may not
bee found.
A needl: swal-
lowed, came
forth at the na-
vell some two
yeeres after.

Anthony Benevenius a Florentine Physitian writes, that a certaine woman swallowed a brasse needle without any paine, and continued a yeere after without feeling or complaining of it : but at the end thereof she was molested with great paines in her belly ; for helping of which she asked the advise of all the Physitians she could, making, in the interim, no mention of the swallowed needle. Wherefore shee had no benefit by all the medicines she tooke ; and shee continued in paine for the space of two yeeres, untill at length the needle came forth at a little hole by her navell, and then she recovered her health.

A Schollar named *Chambelant*, a native of *Bourges*, a student in *Paris*, in the Colledge of *Presse*, swallowed a stalke of grasse, which came afterwards whole out betweene two of his ribbes, with the great danger of the schollars life. For it could not come there unlesse by passing or breaking through the lungs, the encompassing membrane, and the intercostall muscles, yet hee recovered, *Fernelius* and *Huguet* having him in cure.

A sprig of grasse swallowed, came forth whole againe betweene the ribs.

Cabrolle Chirurgian to *Monsieur*, the Marshall of *Anville*, told mee that *Francis Guillenet* the Chirurgian of *Sommiers*, a small village some eight miles from *Mompelier*, had in cure, and healed a certaine shepheard, who was forced by theeves to swallow a knife of the length of halfe a foot, with a horne handle of the thickenesse of ones thumbe: he kept it the space of halfe a yeere, yet with great paine, and hee fell much away, but yet was not in a consumption, untill at length an abcesse rising in his groine, with great store of very stinking quitture, the knife was there taken forth in the presence of the Justices, and left with *Joubert* the Physitian of *Mompelier*.

A knife swallowed, came forth at an abcesse in the groine.

Monsieur the Duke of *Roan* had a Foole called *Guido*, who swallowed the point of a sword of the length of three fingers, and hee voided it at his fundament on the twelfth day following, yet with much adoe: there are yet living many Gentlemen of *Britanie*, who were eye-witnesses thereof.

The point of a sword swallowed came forth at the fundament.

There have been sundry women with childe, who have so cast forth piece-meale children that have died in their wombes, as that the bones have broke themselves a passage forth at the navill, but the flesh, dissolved as it were into quitture, flowed out by the necke of the wombe and the fundament, the mothers remaining alive, as *Dalechamps* observes out of *Albucasis*.

Wonderfull excretions of infants out of the wombe.

Is it not very strange that there have bin women, who troubled with a fit of the Mother, have lien three whole dayes without motion, without breathing, or pulse that were any way apparent, and so have beene carried out for dead?

Women troubled with the Mother laid out for dead.

A certaine young man, as *Fernelius* tells, by somewhat too vehement exercise, was taken with such a cough, that it left him not for a moment of time, untill hee therewith had cast forth a whole impostume of the bigness of a pidgeons egg, wherein, being opened, there was found quitture exquisitely white and equall. He spit blood two dayes after, had a great feaver, and was much distempered: yet notwithstanding he recovered his health.

An impostume spit out, of the bignesse of a Pidgeons egge.

Anno Dom. 1578. *Stephana Chartier*, dwelling at *St. Maure des Faussez*, a widow of fourty yeeres old, being sicke of a tertian Feaver, in the beginning of her fit vomited up a great quantity of choler, and together therewith three hairy wormes, in figure, colour, and magnitude like the wormes called Beare-wormes, yet somewhat blacker; they lived eight whole daies after without any food: the Chirurgian of this towne brought them to Dr. *Milot*, who shewed them to *Feure*, *Le Gros*, *Marescot* and *Courtin* Physitians, and to me also.

Worms cast up in the fit of an Ague.

This following history, taken out of the *Chronicles of Monstrele*, exceeds all admiration. A certaine Franck-Archer of *Meudon*, four miles from *Paris*, was for robbery condemned to be hanged: in the meane time it was told the King by the Physitians, that many in *Paris* at that time were troubled with the stone, and amongst the rest the Lord of *Boscage*, and that it would be for the good of many, if they might view and discern with their eyes the parts themselves wherein so cruell a disease did breed, and that it might be done much better in a living than in a dead body, and that they might make tryall upon the body of the Franck-Archer, who had formerly beene troubled with these paines. The King granted their request; wherefore opening his body they viewed the breathing parts, and satisfied themselves as much as they desired, and having diligently and exactly restored each part to its proper place, the body, by the Kings command, was sewed up againe, and dressed and cured with great care. It came so to passe, that this Franck-Archer recovered in a few daies, and getting his pardon, got good store of mony besides.

This narration exceeds not onely all admiration, but all beliefe.

Alexander Benedictus tells that hee saw a woman called *Victoria*, who having lost all her teeth, and being bald, yet had others came up in their places, when as she was fourescore yeeres old.

Pract. lib. 64: cap. 1.

Stephen Testier a Chirurgian of *Orleanse*, told me that not long agoe he cured one *Charles Veriguell*, a Serjeant of *Orleanse*, of a wound received in his hamme, whereby the two tendons bending the ham, were quite cut insunder. He took this order in the cure; hee caused the patient to bend his legge, then hee sewed together the ends of the cut tendons, then placed the member in that site, and handled it with that art, that at length he healed the wound, the patient not halting at all. Truly this is a very memorable thing, and carefully and heedfully to be imitated by the young Chirurgian.

How many have I seen, who wounded and thrust through the body with swords, arrowes, pikes, bullets, have had portion of the braine cut off by a wound of the head, an arme or legge taken away by a cannon bullet, yet have recovered; and how many on the contrary, have died of light and small wounds, not worth the speaking of:

5. Epidem.

A certaine man was shot in neare to his groine with an arrow, whom we have seen, saith *Hippocrates*, and he recovered beyond all mens expectation; The arrow head was not taken forth, for it was very deep in, neither did the wound bleed very much, neither was it enflamed, neither did he halt: but wee found the head, and tooke it forth sixe yeeres after he was hurt. Now *Hippocrates* gives no other reason of its so long stay, but that he saith it might be suspected it lay hid betweene the nerves, and that no veine nor artery was cut thereby.

CHAP. XX.

Of the wonderfull originall, or breeding of some creatures.

Boist. in histor.
prodig.



WE have read in *Boistey*, that a certaine workeman of *Avignon*, when as hee lived in that city, opened a leaden coffin, wherein a dead body lay, that was so closely souldered, that the aire could not get in; and as he opened it, he was bitten by a serpent that lay therein, with so venomous and deadly a bite, that it had neere to have cost him his life. Yet

It is a common
thing for a ser-
pent to breed of
the dead corps
of a man.
A live serpent
in a solide Mar-
ble.

the originall of this creature is not so prodigious as hee supposeth, for it is an usuall thing for a Serpent to breed of any putrefied carcasse, but chiefly of a mans.

Baptista Leo writes, that in the time of Pope *Martin* the first, there was a live serpent found enclosed in a vaste, but solid Marble, no chinke appearing in such dense solidity, whereby this living creature might breath.

The cause of
such wonderfull
generations.

Whilest in my vine-yard, that is at *Mendon*, I caused certain huge stones to be broken to pieces, a Toad was found in the midst of one of them. When as I much admired thereat, because there was no space wherein this creature could be generated, encrease or live, the Stone-cutter wished mee not to marvaile thereat, for it was a common thing, and that he saw it almost every day. Certainly it may come to passe that from the more moist portion of stones, contained in places moist and under ground, and the celestiall heat mixing and diffusing it selfe over the whole masse of the world, the matter may be animated for the generation of these creatures.

CHAP. XXI.

Of the wondrous nature of some marine things, and other living creatures.



THE last mentioned creatures were wonderfull in their originall, or rather in their growth: but these which follow, though they be not wonderfull of themselves, as those that consist of their owne proper nature, and that working well and after an ordinary manner; yet they are wondrous to us, or rather monstrous; for that they are not very familiar to us. For the

rarity

rarity and vastnesse of bodies, is in some sort monstrous. Of this sort there are many, especially in the Sea, whose secret corners and receptacles are not pervious to men: as Tritons, which from the middle upwards are reported to have the shape of men. And the *Sirenes*, *Neræides* or Mere-maides, who (according to *Pli- Lib. 9. cap. 5.* ny) have the faces of women, and scaly bodies, yea where as they have the shape of man: neither yet can the forementioned confusion and conjunction of seeds take any place here, for, as we lately said, they consist of their owne proper nature.

When *Mena* was President of *Ægypt*, and walked on the banks of *Nilus*, he saw a Sea-monster in the shape of a man, coming forth of the waters: his shape was just like a man even to the middle, with his countenance composed to gravity, his haire yellow, yet intermixed with some gray, his stomach bony, his armes orderly made and jointed, his other parts ended in a fish. Three daies after in the morning there was seene another Sea-monster, but with the shape or countenance of a woman, as appeared by her face, her long haire, and swollen breasts: both these monsters continued so long above water that any one might view them very well.

The effigies of the Triton and Siren of Nilus.



In our times, saith *Rondeletius*, in *Normay* was a monster taken in a tempestuous sea, the which as many as saw it, presently termed a Monk, by reason of the shape which you may see here set forth.

The figure of a fish resembling a Monke.



Anno Dom. 1531. there was scene a sea-monster in the habite of a Bishop, covered over with scales: Rondeletius and Gesner have described it.

The figure of a fish in the habite or shape of a Bishop.



Gesner professeth that hee received from *Jerome Cardane* this monster, having the head of a Beare, the feet and hands of an Ape.

The effigies of a Sea-monster headed like a Beare.



Not long before the death of Pope *Paul* the third, in the midst of the *Tyrrhene* sea, a monster was taken, and presented to the successour of this *Paul*: it was in shape and bignesse like to a *Lion*, but all scaily, and the voice was like a mans voice. It was brought to *Rome* to the great admiration of all men, but it lived not long there, being destitute of its owne naturall place and nourishment, as it is reported by *Philip Lib. 5. chron. Forrest.*

The effigies of a Lion-like scaily Sea-monster.



Anno Dom. 1523. the third day of *November*, there was seen at *Rome* this sea-monster, of the bignesse of a child of five yeeres old, like to a man even to the navell, except the eares; in the other parts it resembled a fish.

The

The effigies of a Sea-monster with a mans face.

Gesner makes mention of this Sea-monster, and saith that he had the figure thereof from a Painter, who tooke it from the very fish, which hee saw at *Antwerpe*. The head lookes very ghastly, having two hornes, pricke eares, and armes not much unlike a man, but in the other parts it was like a fish. It was taken in the *Illyrian Sea*, as it came a shore out of the water to catch a little child : for being hurt by stones cast by fishermen that saw it, it returned a while after to the shore from whence it fled, and there died.

The effigies of a Sea Devill.

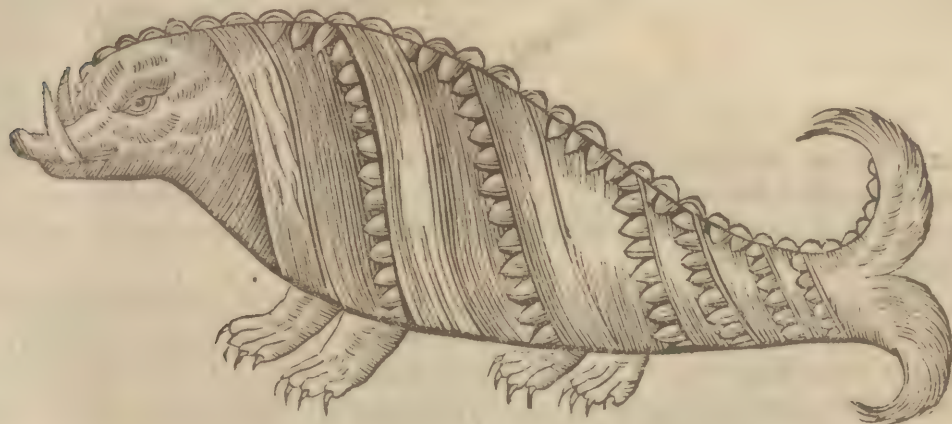
Gesner tells that a Sea-monster with the head, mane, and breast of a horse, and the rest of his body like a fish, was seene and taken in the ocean Sea, brought to *Rome*, and presented to the Pope.

Olaus Magnus tells that a Sea-monstertaken at *Bergen*, with the head and shape of a Calfe, was given him by a certaine English Gentleman. The like of which was presented lately to King *Charles* the ninth, and was long kept living in the waters at *Fountaine-Bleau*, and it went oft times ashore. This is much different from the common Sea-calfe or Seale.

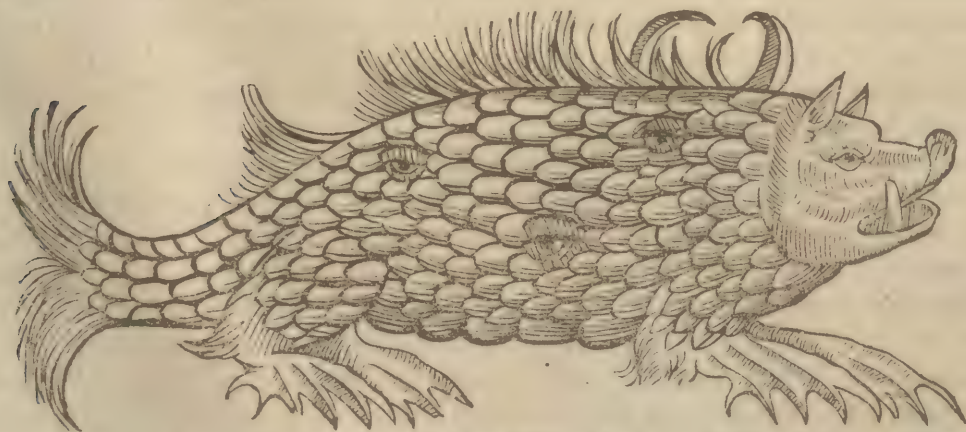
*The effigies of a monstrous * Sea-calf.*

* This here figured is the sea-Morse, taken commonly by our men in their Greene-land voyages: and I judge the sea-Bore and Elephant to be the same, but that the Painter hath shewed his skill too much in the one: and the other is an old Morse, as this here figured is a young one.

This great monster was scene in the Ocean sea, with the head of a Bore, but longer tuskes, sharpe and cutting, with scales set in a wonderfull order, as you may see by this figure.

The effigies of a Sea-bore.

Olaus Magnus writes that this monster was taken at Thyle an Iland of the North, Anno Dom. 1538. it was of a bignesse almost incredible, as that which was seventy two foot long, and fourteene high, and seven foot betweene the eyes: now the liver was so large that therewith they filled five hogsheds, the head resembled a swine, having as it were a halfe moone on the backe, and three eyes in the midst of his sides, his whole body was scaily.

The effigies of a monstrous Sea-swine.

The Sea Elephant is bigger than the land Elephant, as Hector Boëtius writes in his description of Scotland; it is a creature that lives both in the water and a shore, having

ving two teeth like to elephants, with which as oft as hee desires to sleepe, he hangs himselfe upon a rocke, and then he sleeps so soundly, that Mariners seeing him at sea, have time to come ashore, and to bind him, by casting strong ropes about him. But when as he is not awakned by this meanes, they throw stones at him, and make a great noise, with which awakned, he endeavors to leape back into the sea with his accustomed violence, but finding himselfe fast, hee growes so gentle, that they may deale with him as they please. Wherefore they then kill him, take out his fat, and divide or cut his skin into thongs, which because they are strong and doe not rot, are much esteemed of.

The effigies of a Sea-Elephant.



The Arabians of Mount *MaZovan*, which runnes alongst the Red Sea, chiefly feed on a fish called *Orobone*, which is very terrible and much feared by other fish, being nine or ten foot long, and of a breadth agreeable thereto, and it is covered with scales like a Crocodile.

A Crocodile is a vaste creature, comming sometimes to be fiftene cubites long, and seeing it is a creature that doth not bring forth young, but egges, it useth at the most to lay some sixty egges, no bigger than Goose egges, rising to such bignesse from so small beginnings (for the hatched young one is proportionable to the egge): she is very long lived.

The Crocodile
only moves the
upper jaw.

Expende dili-
genter Plinii lo-
cum lib. 28.
cap. 8.

Cosmograph.
tom. 1. lib. 2.
cap. 8.
How they take
Crocodiles.

It hath so small and uselesse a tongue, that it may seeme to have none at all. Wherefore seeing it lives both on land and water; as it lives on land it is to bee taken for a tongue, but as it lives part of the life in the water it hath no use of a tongue, and therefore is not to bee reputed one. For fishes either wholly want tongues, or else have them so impedit and bound, that they serve for little use. The Crocodile onely of all other things moves the upper jaw, the lower remaining unmoveable: for her feet, they are neither good to take nor hold any thing; she hath eyes not unlike those of swine, long teeth standing forth of the mouth, most sharpe clawes, a scaily skin, so hard that no weapon can pierce it. Of the land Crocodile (resembling this both land and water one) is made the medicine *Crocodilea*, most singular for sore eyes, being anointed with the juice of leekes, it is good against suffusions or dimnesse of the sight; it takes away freckles, pustles, and spots; the Gall anointed on the eyes, helps Cataracts, but the blood cleares the sight.

Thevet saith they live in the fountaines of the river *Nilus*, or rather in a lake flowing from the same fountaines, and that he saw some that were sixe paces long, and a yard crosse the backe, so that their very lookes were formidable. They catch them thus; when as the water of *Nilus* falls, the Egyptians let down a line, having there-to fastened an iron hooke of some three pound waight, made very large and strong, upon this hooke they put a piece of the flesh of a Camell or some other beast; which when as he sees, he presently falls upon it, and devoures it hooke and all, wherewith when he findes himselfe to bee cruelly pulled and pinched, it would delight you to see how he frets and leaps aloft; then they draw him thus hooked, by little and little to the shore, and fasten the rope surely to the next tree, lest hee should fall upon them

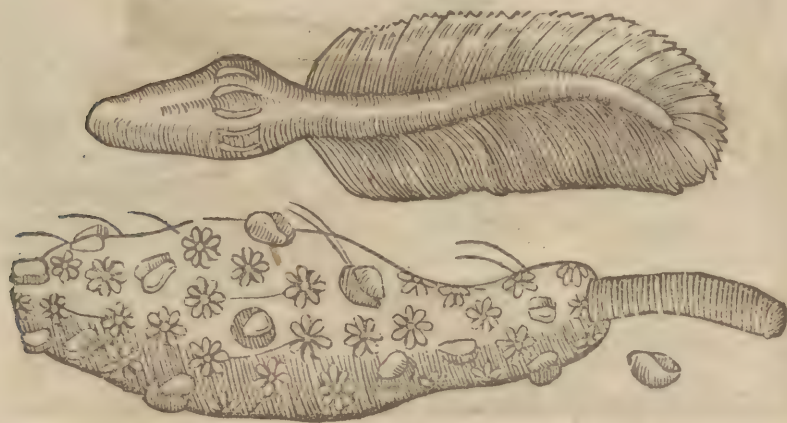
them that are about him; then with prongs, and such things they so belabour his belly, where as his skin is soft and thinne, that at length they kill him, and uncasing him, they make ready his flesh, and eat it for delicious food. *John Lereus*, in his history of *Brasil*, writes that the Salvages of that country willingly feed upon Crocodiles, and that hee saw some who brought into their houses young ones, where-with the children gathering about it, would play without receiving any harme thereby. Cap. 16.

True (saith *Pliny*) is that common opinion, Whatsoever is brought forth in any part of Nature, that also is in the sea, and many other things over and above, that are in no other place. You may perceive that there are not onely the resemblances of living creatures, but also of other things; if you looke upon the sword, saw, cucumber, like in smell and colour to that of the earth, that you may lesse wonder at the Sea feather and grape, whose figures I have here given you out of *Rondeletius*. Lib. 9. cap. 2.

The sea feather is like those feathers of birds, which are worne in hats for ornament, after they are trimmed and drest for that purpose. The fishermen call them sea prickles, for that one end of them resembleth the end of a mans yard, when the prepuce is drawne off it. As long as it is alive it swells, and becomes sometimes bigger and sometimes lesser; but dead, it becomes very flaccide and lanke: it shines bright on the night like a starre.

You may by this gather, that this which wee here expresse is the Grape whereof *Pliny* makes mention, because in the surface and upper part thereof it much resembles a faire bunch of Grapes; it is somewhat longish, like a mis-shapen clubbe, and hangs upon a long stalke. The inner parts are nothing but confusion, sometimes distinguished with little glandules, like that wee have here figured alone by it selfe.

The figures of the Sea Feather and Grape.



In the Sea neere the Island *Hispaniola* in the West Indies, there may be seene many monstrous fishes, amongst which *Thevet* in his *Cosmography* thought this most rare and observable, which in the vulgar language of the natives is termed *Aloes*. For it is just like a goose, with a long and straight necke, with the head ending sharpe, or in a Cone, not much unlike a sugar-peare, it is no bigger than a goose, it wanteth scales, it hath foure finnes under the belly for swimming, when it is above water you would say that it were a goose.

The Sarmatian, or Easterne Germane Ocean containes fishes unknowne to hot countries, and very monstrous. Such is that which resembling a snail, equalls a barrell in magnitude of body, and a stag in the largenesse and branches of her hornes: the ends of her hornes are rounded as it were into little balls, shining like unto pearles, the necke is thicke, the eyes shining like to lighted candles, with a roundish nose set with haire like to a cats, the mouth wide, whereunder hangs a piece of flesh very ugly to behold. It goes on foure legges, with so many broad and crooked feet, the which with a long taile, and variegated like a Tiger, serves her for finnes to swim withall.

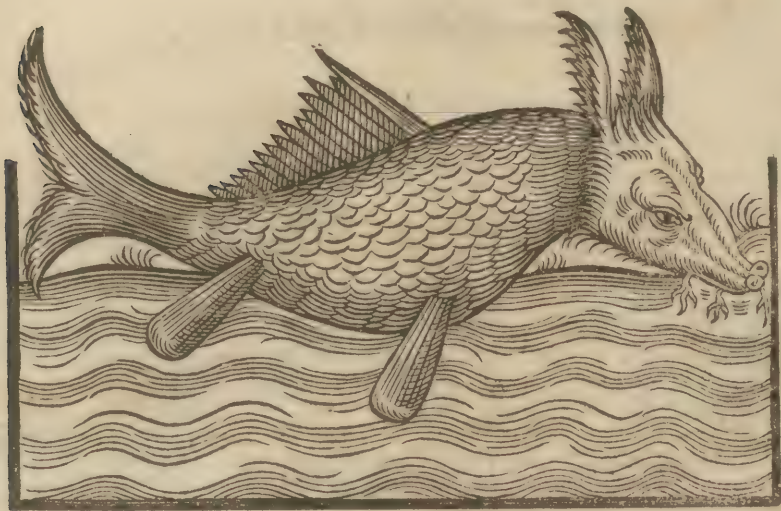
The blood of
great Tortoises
good for the le-
prosie.

Tom. 2. lib. 20.

withall. This creature is so timerous, that though it be an *Amphibium*, that is, which lives both in the water and ashore, yet usually it keeps it selfe in the sea, neither doth it come ashore to feed unlesse in a very cleare season. The flesh thereof is very good and gratefull meat, and the blood medicinable for such as have their livers ill affected, or their lungs ulcerated, as the blood of great Tortoises is good for the Leprosie. *Thevet* in his *Cosmography* affirmeth that hee saw this in *Denmarke*.

In a deepe lake of fresh water, upon which stands the great city or towne of *Themistitan*, in the Kingdome of *Mexico*, which is built upon piles, like as *Venice* is, there is found a fish of the bignesse of a Calfe, called by the southerne Salvages, *Andura*, but by those of the place, and the Spaniards the conquerers of that place, *Hoga*. It is headed and eared almost like a swine; from the chaps hang five long bearded appendices, of the length of some halfe a foot, like the beard of a Barbell. It hath flesh very gratefull and good to eat. It bringeth forth live young like as the Whale. As it swimmes in the waters, it seemes Greene, yellow, red, and of many colours, like a Chameleon: it is most frequently conversant about the shore sides of the lake, and there it feeds upon the leaves of the tree called *Hoga*, whence also the fish hath its name. It is a fearefully toothed and fierce fish, killing and devouring such as it meeteth withall, though they bee bigger than her selfe: which is the reason why the Fishermen chiefly desire to kill her, as *Thevet* affirmeth in his *Cosmography*.

The monstrous fish Hoga.



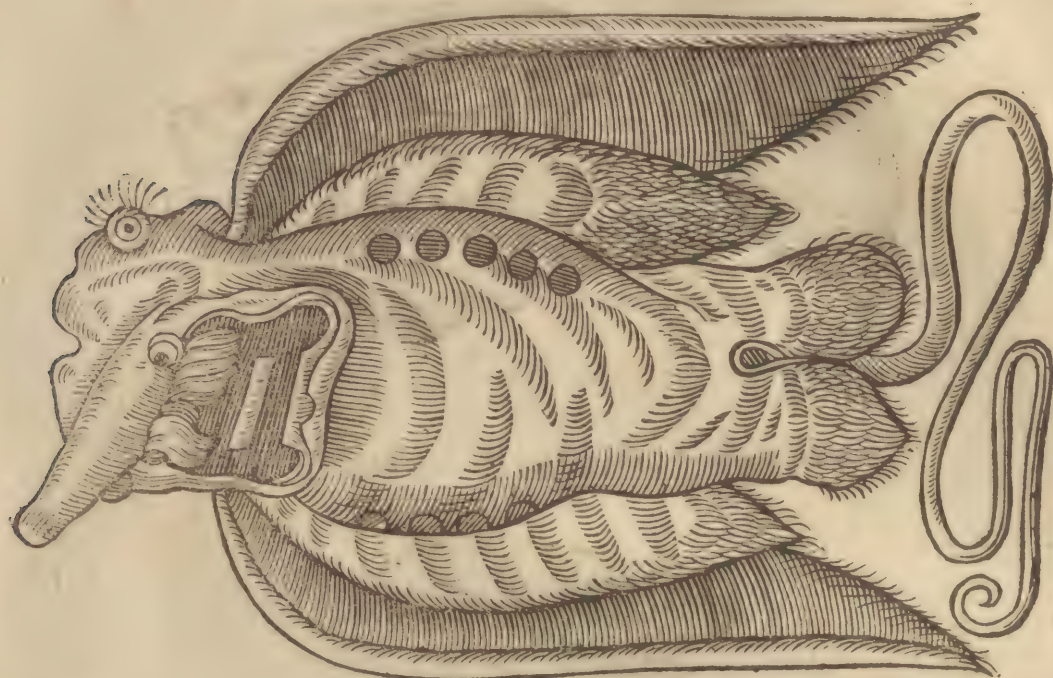
Andrew Thevet in his *Cosmography* writes that as he sailed to *America*, hee saw infinite store of flying fishes, called by the salvages *Bulampech*, who rising out of the water, flye some fifty paces, escaping by that meanes from other greater fish that thinke to devoure them.

This kinde of flying fish exceeds not the bignesse of a Mackrell, is round headed, with a blewish backe, two wings which equall the length of almost all their body. They oft times flye in such a multitude, that they fall foule upon the sailes of ships, whilst they hinder one anothers sight, and by this meanes they fall upon the decks, and become a prey to the Sailers: which same thing we have read confirmed by *John Lereus* in his history of *Brasil*.

In the Venetian gulfe, betweene *Venice* and *Ravenna*, two miles above *Quioza*, anno Dom. 1550. there was taken a flying fish, very horrible and monstrous, being foure foot long, it had a very great head, with two eyes standing in a line, and not one against another, with two eares, and a double mouth, a snout very fleshy and Greene, two wings, five holes in her throat, like those of a Lamprey, a taile an ell long

long, at the setting on whereof there were two little wings. This monster was brought alive to *Quioza*, and presented to the chiefe of the city, as a thing whereof the like had not beene formerly seene.

The figure of a monstrous flying Fish.



There are so many and different sorts of shells to be found in the Sea, that it may be truly said, that Nature, the hand-maid of the Almighty, desports it selfe in the framing of them. In so great diversity I have chiefly made choice of three to treat of here, as those that are worthy of the greatest admiration. In these lye hid certain little fishes, as snails in their shells, which *Aristotle* calls *Cancelli*, and hee affirmeth them to be the common companions of the * cruisted and shell fishes, as those which in their *species* or kinde are like to Lobsters, and use to be bred without shells; but as they creepe into shells, and there inhabite, they are like to shell fishes. It is one of these that is termed the Hermite. He hath two somewhat long and slender hornes, under which are his eyes, alwaies standing out of his head, as those which he cannot plucke and draw in, as Crabbes can. His fore-feet have clawes upon them, wherewith he defends himselfe, and carries meat to his mouth, having two other on each side, and a third being lesser, the which he useth in going. The female laies egges, which hang forth at her backe part as if they were put upon a thread, being joyned together by certaine little membranes. Lastly, in the opinion of *Ælian*, the *Cancellus* or small Cray-fish is borne naked and without a shell, but within a while after, she of many which shee findes empty, makes choice of a fit one, and when as growne bigger, she cannot bee contained or dwell any longer therein, or else being stimulated with a naturall desire of copulation, she removes into a more capacious and convenient one. These little Cray-fishes oft times fight together for their habitation, and the stronger carries away the empty shell, or else makes the weaker to quit possession. Now the shell is either of a *Nerita*, or *Turbo*, and oft times of a small Purple; and entring into possession, she carries it about, there feeds and growes, and then seekes a more capacious one, as *Aristotle* saith in the formerly cited place.

4. de hist. anim.
cap. 4.

* By cruisted is meant Crabs, Lobsters, Shrimps, and such like.

The description of the Hermite cray-fish.

Lib. 7. cap. 31.

They change their habitation for two causes.

*The effigies of the empty shells whereinto the Cancelli use to creep
to dwell.*



The effigies of Bernard the Hermite housed in his shell.



The figure of him out of his Cell.



Some thinke that this Bernard the Hermite is that kinde of *Cancellus* which is by *Pliny* termed *Pinnoter*; but in truth the *Pinnoter* is not a kinde of *Cancellus* or Cray-fish, but of a little Crab. Now in *Aristotle* there is much difference betweene *Cancellus* and *Cancer parvus*, though *Pliny* may seeme to confound them; for he is bred naked, having his crust onely, but without a shell: wherefore seeing that by nature he wants it, he diligently searches for it, and dwells in it, when as he hath found it: But the *Pinnoter* is not bred by it selfe alone, but in *Pinna* and some others, and hee changeth not his habitation, because (as *Aristotle* thinks) being of the kind of dwarfe Crabbes, it never growes bigge, neither dwells it in empty shells. Now the *Pinna*, or Pinne is a kinde of shell-fish, it breeds in muddy places, and is alwaies open, neither is it at any time without a companion, which they therefore call the *Pinnoter*, or *Pinnophylax* (i. e.) the Pin-keeper, as *Pliny* saith. Verily that these things are thus, you may plainly perceive by these words of *Athenaus*. *Chrysippus Solensis* §. de Honest. & Volupt. saith the *Pinna* and *Pinnoter* assist and further each other, neither can they live asunder. The *Pinna* may be referred to the kinds of oysters, but the *Pinnoter* is a dwarfe Crabbe: the *Pinna* opens her shell for the little fishes to enter thereinto; the *Pinnoter* stands by, observing if any come in, which if they doe, he gives the Pin notice thereof by biting, who presently thereupon shuts her shell, and so they feed together upon that they catch by this meanes. Thus *Athenaus*. Shee is also for this her craft mentioned by *Plutarch* in his writings. The *Pinnoter* is sometimes called by *Pliny*, *Cancer dapis affectator*.

What the *Pinnoter*, or dwarfe crab is.

What the *Pinna* is.

Lib. 9. cap. 42.
Lib. 3. Deipno.

The familiarity and craft of the *Pinna* and *Pinnoter*.

But that which by these authors is attributed to the dwarfe Crabbe, the same by *Cicero* is ascribed to the little shrimpe: now the *Pinna* (saith hee) opening her two large shells, enters into confederacy with the little shrimp for getting of food, wherefore when little fishes swimme into her gaping shell, then the *Pinna*, admonished by the shrimps biting her, shuts her shell; thus two unlike creatures get their livings together. But *Plutarch* seemes to make the *Pinna* to be the Pearle Oyster, in that work of his, whereas he enquireth whether the craft of Water or Land beastes bee the greater.

Lib. 2. de nat. deorum.

But amongst the most miraculous fishes may fitly bee placed the *Nautilus*, or Sayer, of some called *Pompylos* (it is thought to bee a kinde of *Polypus*) it comes with the face upwards to the toppe of the Sea, raising it selfe by little and little, that casting forth all the water by a pipe, as if it had a Pumpe, it easily floats; then putting backe the two first tendrills or armes, it extends betweene them a membrane of wondrous fineness or thinnesse, which gathering aire like as a saile, and she rowing with the rest of her armes, she guides her selfe with her taile in the midst, as a Rudder. Thus shee sailes along in imitation of Pinnaces, and if any thing affright her, she presently takes in water, and sinkes her selfe.

Plin. lib. 9. cap. 29.

The shape of the *Nautilus*, or Sayer-fish.



How the Whale
may be recko-
ned amongst
monsters.

A whale brings
forth young, &
suckles them.

How they are
caught.

Why the fe-
males are more
easily caught
than the males.

The better to store this treatise of Monsters, abusing the name with the Poets, we will reckon up the whale amongst the Sea-monsters, by reason of his monstrous and wondrous magnitude. Now the Whale is the greatest by much of all the fishes of the Sea, for most commonly this beast is thirty six cubits long, eight high, the slit of his mouth is eightene foot long, teeth they have none, but in stead thereof in each Jaw horny blacke excrescences or finnes [which we vulgarly terme Whale-bones] which by little and little end in small haire like to a swines bristles, which coming and standing out of his mouth, are in stead of Guides, lest whilest he swimmes with a blind and rapide violence, he might runne against a rocke. His eyes are distant one from the other the space of foure elles, which outwardly appeare small, but inwardly they are bigger than a mans head; wherefore they are deceived that say that they are no bigger than an Oxes eyes: his nose is short, but in the middle of his forehead he hath a pipe whereat hee drawes in the aire, and casts forth a whole shower or river of water, that therewith he will even sinke the vessels or boats of the Marriners; when hee hath filled himselfe beyond measure, hee cryes or roars with so great or strong a voice, that hee may bee heard two miles off. Hee hath two very large finnes upon his sides wherewith he swimmes, and under which in time of danger he hides his young; hee hath none upon his backe. His taile in site is like to the tailed of Dolphins, neither is it much unlike in shape, which when he moves, hee so tosseth the Sea, that he drownes and overturnes the boats that hee toucheth. You may by dissecting them finde that a Whale brings forth live young, and gives them sucke; for the male hath testicles and a yard, but the female a wombe and dugges. They are taken in divers places about winter, but chiefly about the coast of *Aquitaine*, at a small towne which is vulgarly called *Biarris*, some sixe miles distant from *Bayon*: whereunto I being sent by King *Charles* the ninth when he was at *Bayon*, to cure the Prince of *Roche Sur-Yon*, I was an eye witnesse how they are caught; and also I confirmed that which I had formerly read to that purpose, in that excellent and most true history of fishes set forth by *Rondeletius*. Now at that towne there is a little hill, in the toppe whereof there is a Tower of very great antiquity, from which as from a watch-Tower they keepe watch whether or no any Whales swimme that way. Wherefore the watch-men from the tower, either seeing, or by the horrible noise hearing a Whale to passe by that way, they give warning thereof to the inhabitants by the beating of Drums, and ringing a Bell: which signe once given, they all runne forthwith, as to extinguish the city if it were on fire, being furnished with weapons and all things fitting for that purpose. For the people of that country are very diligent and expert in catching the Whale. Wherefore in each of the boats furnished with all things either to assaile or flye, there are put ten lusty rowers, and divers others furnished with harping-irons to strike the Whale; which being cast and fastened in her, they loose out huge long ropes fastened to them, untill such time as he be dead, then together with the ropes, and assisted by the waves of the sea, they draw the Whale (wearyed with running and labouring, and fainting by reason of the magnitude and multitude of his wounds, being in the time of their conflict diligently chased and driven toward the shore) a land; & merrily part the prey, each whereof hath his share, according to the number of the irons throwne, the magnitude of the wound, and the necessity and excellency of the wounded part for life: each of their harping-irons are knowne by their peculiar marks. In the heat of the skirmish many stand up and downe in boats, onely for this purpose, to take up such as chance to fall into the Sea, lest they should be drowned. The males are caught with more difficulty, the females more easily, especially if their young ones bee with them; for whilest they linger to helpe and succour them, they lose the occasion of escaping. The flesh is of no esteeme, the tongue onely is commendable; for being very large, and of a very lax substance, it is poudred, and by most Gentlemen accounted for a dainty. The larde is disperfed over many countries, to be boiled & eaten with fish in the time of Lent, that Gourmandizers may have something to serve them in stead of flesh which is then forbidden. There is great store of fat in them in the parts under the skin and belly, which melted, concretes not againe, by reason of the subtlety of the parts, they keepe it to burne in lampes, and to use about their ships. The

houses

houses of the fish-eaters are builded with their bones; also orchards in the coast of *Aquitaine* are fenced with these bones. The finnes that stand forth of their mouths, ^{Whalebone.} which are commonly called Whale-bones, being dryed and polished, serve to make buskes for women, whip-staves, and little staves, as also to stiffen garments. Many make seats or stools of the *vertebrae*, or spondills of the backe-bone.

The manner of the cutting up of the Whale.



In the river *Scalde*, ten miles from *Antwerpe*, *Anno Dom.* 1577. the second day of *July*, there was a Whale taken, of a blackish blue colour, shee had a spout hole in the top of her head, out of which shee cast great store of water: she was fifty eight foot long, and sixtene foot high: her taile was fourtene foot broad; from the eye to the end of her nose was some sixtene foot. Her lower jaw was sixe foot on each side, she had twenty five teeth, which shee could hide in her upper jaw, there being holes for them, it being wholly toothlesse; for which one thing this Whale may bee judged monstrous, for that nature hath denied them teeth, and for that in creatures that are not horned, it is so ordained by nature, that when they have teeth in their lower jaw, they should have others also in the upper to answer to them, so to chew their meat. The longest of these teeth exceeded not sixe inches.

There is (as *Pliny* reports) a very small fish accustomed to live about rockes, it is called *Echeneis*, never exceeding the length of a foot; it is thought that shippes goe more slowly if this stick to them: wherefore the Latines have also given it the name of *Remora*, for that a ship being under saile with a good wind, may by the *Echeneis* seazing on her as if she would devoure her, be stayed against the Saylers wills, and stand still as if she were in a safe harbour. Wherefore shee is said in the *Actian* fight to have stayed the ship of *Marcus Antonius*, hastening to goe about and encourage his souldiers, so that he was forced to enter into another ship, and thereupon *Casars* navie came upon them too hastily, and before they were provided.

*Lib. 9. cap. 25.
& lib. 32. ca. 1.
The wondrous
power of the
Remora.*

Shee also staid the ship of the Emperour *Caius*, comming from *Asura* to *Antes*, his ship of all the navie making no way; neither did they long wonder at this stay, the cause being presently knowne; some forthwith leaping into the Sea to finde the cause thereof, there found her about the ship, even sticking to the Rudder, and they shewed her to *Caius*, being wrath that this so small a thing should stoppe him, and countermaund the endeavour of forty Rowers.

Therefore this little fish tames and infringes the violence and madnesse of the world, & that with no labour, not with holding or any other way, but only by sticking thereto. Certainly how ever it comes to passe, who from this example of holding of ships, can doubt of any power or effect of nature, in medicines which grow naturally? Yea & without this example, the *Torpedo* out of the sea also may be sufficient, who a farre off, and at a distance, if it be touched with a speare or rod, will benumb even the strongest armes, and retarde the feet, how ever nimble to runne away.

*The wondrous
force of the
Torpedo.*

CHAP. XXII.

Of the admirable nature of Birds, and of some Beasts.

WHAT there bee divers things not onely in the Sea, but also in the aire, and earth, which by the wonderfull condition of their nature may equall that of Monsters, the onely Estrich may serve for a witnesse. It is the biggest of Birds, though indeed it partly resembles a bird, and partly a beast (and it is familiar to *Africa* and *Æthiopia*) as which contrary to the nature of beasts hath feathers, and against the custome of birds, cannot flye aloft; for it hath not feathers fit to flye, but like unto haire, yet will it out-run a horse. The naturall force of the stomacke in concocting is miraculous, as to which nothing is untameable: shee layes egges of a wondrous largenesse, so that they may bee framed into cuppes: their feathers are most beautifull, as you may perceive by this following figure.

The Estrich is
betweene a bird
and a beast.

The wondrous
force of her sto-
macke.

The figure of an Estrich.



Any one may easily gather of what a prodigious magnitude an Estrich is, by the greatnesse of his bones. Three of these birds were kept at the Kings charge, by the *Mareschall de Rets*: one whereof dying, it was bestowed upon mee, whereof I have with great diligence made a *Skeleton*.

The

The delineation of the Sceleton of an Estrich.

A. Shewes the head, which was somewhat thicker than the head of a Crane, of the length of ones hand, plaine from the crowne even to the beake; the beake being divided to the middle region of the eye, being roundish at the end thereof.

B. The necke, a yard long, consisting of seventene *vertebrae*, each whereof on each side is furnished with a transverse processe looking downewards, of some fingers length, excepting the two which are next the head, as which want these, and are joyned together by *Ginglymos*.

C. The backe is of a foote length, consisting of seven *Vertebrae*.

D. The holy-bone of two foot long, in whose top there is a transverse processe, under which there lyes a great hole.

E. Three more, but lesse.

F. G. H. After which there follows the cavity or socket, whereinto the head of the thigh-bone is received and hid. This externally and on the side produceth a perforated bone, noted with the letter, *I*, perforated I say at the beginning, for it is presently united at the letter, *K*, then is it forked and divided into two other bones, whereof one is bigger than the other. The lesse is noted with the letter, *L*, then are they both united at the letter *M*, each of them is halfe a foot and foure inches long. But from that part whereas they first begun to bee divided, to that whereas they are united, there is a hole some foure fingers broad, but the length of ones hand, or more, and it is noted with the letter, *N*. The residue of the bone is like to a pruning knife three inches broad, but sixe in length: at the end whereunder is the letter, *O*, it is joyned by coalition.

P. The rumpe consisting of nine *vertebrae*, like to a mans. The thigh-bones are two, whereof that which is noted with the letter *Q*, is of the length of a foot, and of thickenesse equall to a horses thigh. The other next under (which peradventure you may call the legge-bone) noted with *R*, is a foot and halfe long: it hath joyned thereto the *Fibula*, or lesser focile of the like length, but which grows smaller as it comes lower.

S. Is the legge, to which the foot adheres, being one foot and a halfe long, divided

ded at the end into two clawes, the one bigger, the other lesse, whereof each consists of three bones.

T. Eight ribbes, which are inserted into the *Sternon*, the three middlemost of these have a bony production like to a hook.

V. Is the *Sternon*, consisting of one bone of some foots length, representing a buckler, to this there is joyned another bone, which stretched over the three first ribs, is in stead of clavicles or collar-bones.

X. The first bone of the wing, which is one foot and halfe long.

Z. Two bones under this, equivalent to the ell and wand, under which there are fixe other bones composing the point of the wing, noted with Z.

This whole *Skeleton* is seven foot long, and so many foot or more high from the feet to the beake: there are many other observable things in her composure, but I have thought fit to omit them for brevities sake.

The description
of the bird
of Paradise.

* Whosoever
desires to know
more of the
truth of this
bird, let him
read *Clusius* in
the *Auctarium*
ad lib. 5. cap. 1.
exoticorum.

Jerome Cardane in his bookes *De subtilitate*, writes that in the Ilands of the *Molucca's*, you may sometimes find lying upon the ground, or take up in the waters, a dead bird called a *Manucodiata*, that is in Hebrew, the bird of God, it is never seene alive. It lives aloft in the aire, it is like a Swallow in body and beake, yet distinguished with divers coloured feathers: for those on the toppe of the head are of a golden colour, those of the necke like to a Mallard, but the taile and wings like Peacocks; * it wants feet: Wherefore if it become weary with flying, or desire sleepe, it hangs up the body by twining the feathers about some bough of a tree. It passeth through the aire, wherein it must remaine as long as it lives, with great celerity, and lives by the aire and dew onely. The cocke hath a cavity deprest in the backe, wherein the hen laies and sits upon her egges. I saw one at *Paris* which was presented to King *Charles* the ninth.

The effigies of a Manucodiata, or bird of Paradise.



*Tom. 2. lib. 21.
cap. 12.*

Wee have read in *Thevet's* *Cosmography*, that he saw a bird in *America*, which in that country speech is called *Tonca*, in this very monstrous & deformed, for that the beake in length and thickenesse, exceeds the bignesse of the rest of the body; it feeds on pepper, as the black-birds and felfires with us do upon Ivie berries, which are not lesse hot than pepper.

A certaine Gentleman of *Provence* brought a bird of this kinde from that country, to present it to King *Charles* the ninth, but dying in the way he could not present it alive. Wherefore the King wished the *Mareschal de Retz* to give her to me, that I might

might take forth her bowells and embalm her, that she might bee kept amongst the Kings rarities. I did what I could, yet not long after she rotted: she resembled a crow in body and feathers, but had a yellowish beake, cleere, smooth, and toothed like a saw, and of such length and thickenesse as we formerly mentioned. I keep it yet as a certaine monstrous thing.

Thevet writes that in the Iland *Zocotera* there is frequently found a certaine wild beast called *Hulpis*, of the bignesse of an *Æthiopian* Monkey. It is a very monstrous creature, but in nothing more, than that it is thought to live upon the aire only; the skinn, as if it were died in graine, is of a scarlet colour, yet is it in some places spotted & variegated: it hath a round head like to a boule, with feet round, broad, and wanting hurtfull nailes. The Moores kill it and use to eat the flesh of it, being first bruised, that so it may be the more tender.

In the Realme of *Camota*, of *Ahob*, of *Benga*, and other mountaines of *Cangipa*, *Plimatiq*, and *Catagan*, which are in the inner *India*, beyond the river of *Ganges*, some five degrees beyond the Tropicke of *Cancer*, is found a beast, which the western Germanes call Giraffe. This beast in head, eares, and cloven feet, is not much unlike our Doe; it hath a very slender necke, but it is some fixe foot long, and there are few beasts that exceed him in the length of their legges: his taile is round, but reacheth no further than his hammes, his skin is exceeding beautifull, yet somewhat rough, having haire thereon somewhat longer than a Cow, it is spotted and variegated in some places with spors of a middle colour, betweene white and chesnur, so as Leopards are: for which cause by some greeke Historians it is called a *Camelopardalis*: it is so wilde before it bee taken, that with the good-will it will not so much as be seen. Therefore it inhabites and lives only in desert and secret places, unknown to the rest of the beasts of that region. He presently flyes away at the sight of a man, yet is he taken at length, for that he is not very speedy in his running away, once taken, he is as easily and speedily tamed as any wild beast whatsoever. He hath above his crowne two straight horns covered with haire, and of a foots length. When as he holds up his head and necke hee is as high as a Lance. He feeds upon herbes, and the leaves and boughes of trees, yea and he is also delighted with bread.

The effigies of a Giraffa.



Such as saile in the red sea alongst the coast of *Arabia*, meet with an Island called by the *Arabians* *Cademota*; in that part thereof where the river *Plata* runnes, is found a wild beast, called by the barbarous inhabitants *Parassoupi*, being of the bignesse of a Mule, headed not unlike one, yet rough and haired like to a Beare, but not of so dark a colour, but inclining to yellow, with cloven feet like a Hart: shee hath two long hornes on her head, but not branched, somewhat resembling those so much magnified hornes of Unicorues. For the natives of the place, bitten by the venomous tooth of either beast or fish, are presently helped and recover by drinking the water wherein such hornes have beene infused for fixe or seven dayes space, as *Thevet* in his *Cosmography* reports.

In one of the Islands of the *Molucca's* there is found a Beast living both on land and water like as a Crocodile; it is called *Camphureh*, it is of the bignesse of an Hart, it hath one horne in the forehead, moveable after the fashion of the nose of a Turkey-cocke: it is some three foot and an halfe long, and never thicker than a mans arme; his neck is covered over with haire of an ash colour, he hath two feet like to a gooses feet, wherwith he swims both in fresh and salt waters. His fore feet are like to a stags,

hee

he lives upon fish. Many have perswaded themselves that this beast is a kind of Unicorn, and that therefore his horne should bee good against poysons. The King of the Iland loves to be called by the name of this beast, and so also other Kings take to themselves the names of the wilde beasts, fishes, or fruits, that are most pretious and observable in their dominions, as *Thevet* reports.

Mauritania and *Æthiopia*, and that part of *Africke* that is beyond the desarts and syrtes, bring forth Elephants; but those of *India* are farre larger. Now although in the largenesse of their body they exceed all foure footed beasts, yet may they bee more speedily and easily tamed than other beasts. For they may be taught to doe many things above the common nature of beasts. Their skin is somewhat like to a Buffle, with little haire upon it, but that which is, is ash coloured; his head large, his necke short, his eares two handfulls broad, his nose or trunke very long, and hanging down almost to the ground, hollow like as a trumpet, the which he useth in stead of an hand, his mouth is not farre from his breast, not much unlike a swines, from the upper part whereof two large teeth thrust forth themselves, his legges are thicke and strong, not consisting of one bone as many formerly have falsly believed (for they kneele to admit their Rider, or to bee laden, and then rise up againe of themselves) his feet are round like a quoit some two or three hands breadth, and divided into five clefts. He hath a taile like a Buffle, but not very rough, some three hands breadth long, wherefore they would be much troubled with flies and waspes, but that nature hath recompenced the shortness of their tales by another way; for when they finde themselves molested, they contract their skin so strongly, that they suffocate and kill these little creatures taken in the wrinkles thereof; they overtake a man running by going onely, for his legges are proportionable to the rest of his body.

The Indian Elephants are bigger than the Africane.

How they keep flies from them

They feed upon the leaves and fruits of trees, neither is any tree so strong or well rooted, which they cannot throw downe and breake. They grow to bee sixteene handfulls high, wherefore such as ride upon an Elephant are as much troubled as if they went to sea. They are of so unbridled a nature, that they cannot endure any head-stall or reines, therefore you must suffer them to take the course and way they please. Yet doe they obey their country men without any great trouble; for they seeme after some sort to understand their speech, wherefore they are easily governed by their knowne voices and words. They throw down a man that angers them, first taking him up with their Trunke and lifting him aloft, and then letting him fall, they tread him under foot, and leave him not before he bee dead. *Aristotle* writes that Elephants generate not before they be twenty yeeres old: they know not adultery, neither touch they any female but one, from which they also diligently abstain when they know she hath once conceived. It cannot be knowne how long they goe with young, the reason is for that their copulation is not seen, for they never do it but in secret. The females bring forth resting upon their hinde legges, and with paine like women; they lick their young, and these presently see and goe, and sucke with their mouths, and not with their Trunkes. You may see Elephants teeth of a monstrous and stupendious bignesse, at *Venice*, *Rome*, *Naples*, and *Paris*; they terme it Ivory, and it is used for Cabinets, Harps, Combes, and other such like uses.

Lib. 9. de hist. anim. cap. 27.

It is not known how long an Elephant goes with young.

The figure of an Elephant.

We have read in *Thevet*, that in *Florida* there are great Bulls, called in that country tongue *Beautrol*, they have horns of a foot long, a bunch on their back like a Camell, their haire long and yellow, the taile of a Lion; there is scarce any creature more fierce or wild, for it can never be tamed unless it be taken from the dam. The Salvages use their Hides against the cold, and their horns as an Antidote against poyson.

Tom. 2. lib. 73. cap. 2.

Their horns good against poysons.

Tom. 1. lib. 2. cap. 10.

The same author affirms that whilest he sayled in the red sea, hee saw a monster in the hands of certaine Indian merchants, which in bignesse and shape of his limbs was not unlike a Tiger, yet had the face of a man, but a very flat nose: besides, his fore feet were like a mans hands, but the hinde like the feet of a Tiger, hee had no taile, he was of a dun colour: to conclude, in head, cares, necke, and face it resembled a man, but in the blackish and curled haire, a More; for the other parts they were like a Tiger, they called it *Thanaeth*.

The figure of a beast called Thanaeth.



This following monster is so strange that it will scarce bee believed, but by those that have seene it: it is bred in *America*, and by the Salvages called *Hait*, of the bignesse of a Monkey, with a great belly, almost touching the ground, and the head and face of a child: being taken, it mournes and sighes like to a man that is troubled and perplext; it is of an ashe colour, hath the feet divided into three claws, foure fingers long, and sharper than those of a Lion: it climbs trees, and lives there more frequently than upon the ground, the taile is no longer than the breadth of three fingers. It is strange and almost monstrous that these kinde of creatures have never bin seene to feed upon or eat any thing: for the salvages have kept them long in their houses to make triall thereof, wherefore they thinke them to live by the aire.

The figure of a beast called Haiit.



I have taken this following monster out of *Leo's* African history; it is very deformed, being round after the manner of a Tortoise, two yellow lines crossing each other at right angles, divide his backe, at every end of which he hath one eye, and also one eare, so that such a creature may see on every side with his foure eyes, as also heare by his so many eares: yet hath hee but one mouth, and one belly to containe his meat; but his round body is encompassed with many feet, by whose helpe he can go any way he please without turning of his body, his taile is something long and very hairy at the end. The inhabitants affirme that his blood is more effectuell in healing of wounds than any balsome.

Blood as good
as balsome.



*Plin. lib. 8.
cap. 29.*

It is strange that the *Rhinoceros* should be a born enemy to the Elephant; wherfore he whets his horne, which growes upon his nose, upon the rockes, and so prepares himselfe for fight, wherein he chiefly assailes the belly, as that which he knowes to be the softest: he is as long as an Elephant, but his legs are much shorter, he is of the colour of box, yet somewhat spotted. *Pompey* was the first that shewed one at *Rome*.

The

The effigies of a Rhinoceros.

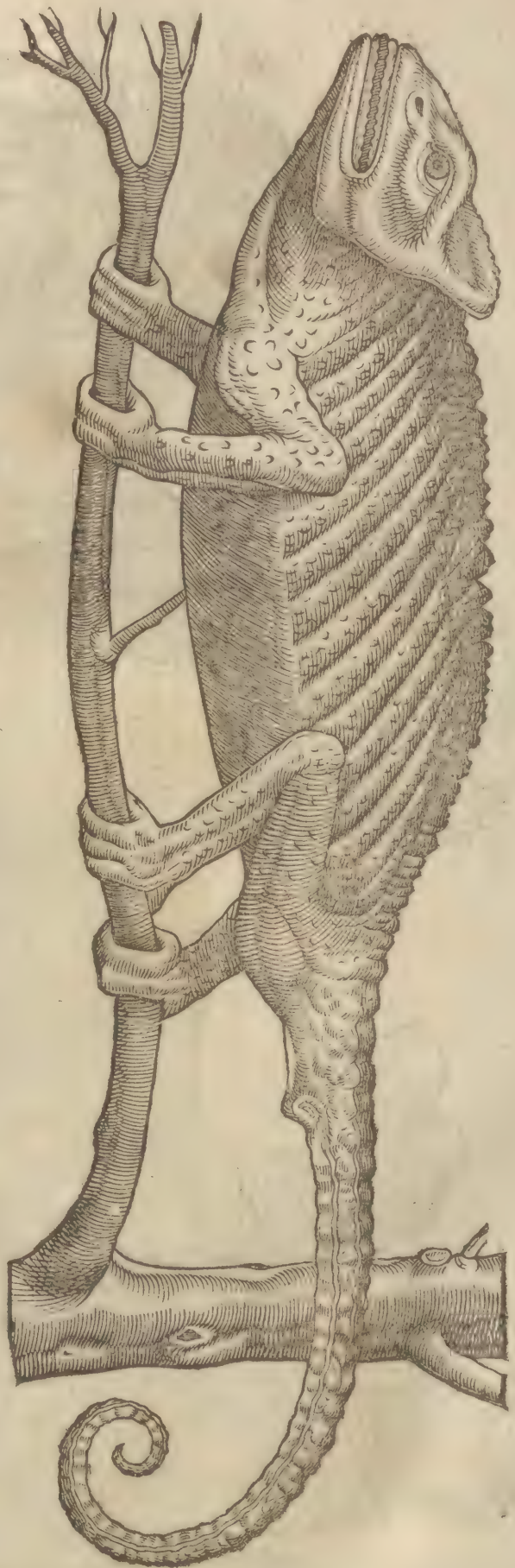
The figure of a Chameleon.

Plin. lib. 8.
cap. 33.

Arist. lib. 2. hist.
anim. cap. 12.

The strange
nature of the
colour of the
Chameleon.

Africa produceth the *Chameleon*, yet is it more frequent in *India*: he is in shape and greatnesse like a Lizard, but that his legs are straight, and higher, his sides are joyned to the belly as in fish, & his backe stands up after the same manner, his nose stands out not much unlike a swines, his taile is long, and endeth sharpe; and hee foulds it up in a round, like a serpent, his nailes are crooked, his pace flow like as the Tortoise, his body rough, hee never shuts his eyes, neither doth hee looke about by the moving of the apple, but by the turning of the whole eye. The nature of his colour is very wonderfull, for he changeth it now and then in his eyes and taile, and whole body beside; and hee alwaies assimilates that which he is next to, unlesse it be red or white. His skin is very thinne, and his body cleare; therefore the one of these two, either the colour of the neighbouring things in so great subtilty of his cleare skinne, easily shines as in a glasse; or else various humors diversly stirred up in him, according to the variety of his affections, represent divers colours in his skinne; as a Turkey-cocke doth in those fleshy excrescences under his throat, and upon his head: hee is pale when he is dead. *Mathiolus* writes that the right eye taken from a living *Chameleon* takes away the white spots which are upon the horny coat of the eye; his body being beaten, and mixed with Goats milke, and rubbed upon any part, fetcheth off haire; his gall discusseth the Cataracts of the eye.



CHAP. XXIII.

Of celestiall Monsters.

Reradventure it hath not bin strange that monsters have beene generated upon the earth and in the Sea: but for monsters to appeare in heaven, and in the upper region of the aire, exceeds all admiration. Yet have wee often read it written by the antients, that the face of heaven hath beene deformed, by bearded, tailed, and haired Comets; by meteors representing burning Torches, and lamps, pillars, darts, shields, troupes of clouds, hostilely assailing each other, Dragons, two Moones, Sunnes, and the like monsters and prodigies.

Antiquity hath not seene any thing more prodigious than that Comet which appeared with bloody haire in *Uvestine*, upon the ninth day of *October*, 1528. for it was so horrible and fearefull a spectacle, that divers died with feare, and many fell into grievous diseases; going from the East to the South, it endured no longer than one hower and a quarter: in the toppe thereof was seene a bending arme holding a great sword in a threatening hand; at the end thereof appeared three starres, but that over which the point of the sword directly hanged was more bright and cleare than the rest: on each side of this Comet were seene many speares, swords, and other kinds of weapons died with blood, which were intermixt with mens heads, having long and terrible haire and beards, as you may see in the following figure.

A Comet with
bloody haire

The figure of a fearefull Comet.



Also there have beene seene great and thicke barres of Iron to have fallen from heaven, which have presently beene turned into swords and rapiers. At *Sugolia* in the borders of *Hungaria*, a stone fell from heaven with a great noise, the seventh day of *September*, anno Dom. 1514. it weighed two hundred and fifty pound: the Citizens hanged it up with a great iron chaine put through it, in the midst of the Church

Lib. 2. cap. 57.

of their City, and used to shew it, as a miracle, to travellers of better note that past that way. *Pliny* reports that the clashing of armour, and the sound of a trumpet were heard from heaven often, before and after the Cimbrian warre. The same author also writes that in the the third Consul-ship of *Marinus*, the *Amarines* and *Tudortines* saw the heavenly armies comming from East and West; and so joyning, those being vanquished which came from the East. Which something was seene in *Lusalia*, at a towne called *Jubea*, two houres after mid-night, anno Dom. 1535. But in anno Dom. 1550. upon the nineteenth day of *July*, in *Saxony*, not farre from *Wittenberg*, there appeared in the aire a great stagge, incompassed with two armed hosts, making a great noise in their conflict, and at the same instant it rained blood in great abundance, the sun seemed to be cloven into two pieces, and the one of them to fall upon the earth. A little before the taking of *Constantinople* from the Christians, there appeared a great army in the aire appointed to fight, attended on with a great company of dogs and other wild beasts. *Julius Obsequius* reports that in anno Dom. 458. it rained flesh in *Italy*, in greater and lesser pieces, part of which were devoured by the birds before they fell upon the earth: that which fell upon the earth kept long unputrefyed, and unchanged in colour and smell. Anno Dom. 989. *Otho* the third being Emperour, it rained corne in *Italy*. Anno Dom. 180. it rained milke and oyle in great abundance, and fruit-bearing trees brought forth corne. *Lycosthenes* tells that in the time of *Charles* the fift, whilest *Maidenberg* was besieged, three sunnes first appeared about seven a clocke in the morning, and then were seene for a whole day, whereof the middlemost was the brightest, the two others were reddish and of a bloody colour; but in the night time there appeared three moones. The same appeared in *Bavaria*, anno Dom. 1554.

Prefages of the
taking of Con-
stantinople.

Monstrous rains

Earthquakes.

Lib. 2. cap. 73.

But if so prodigious and strange things happen in the heavens besides the common order of nature, shall wee thinke it incredible that the like may happen in the earth? Anno Dom. 542. the whole earth quaked, mount *Aetna* cast forth flames and sparkes of fire, with which many houses of the neighbouring villages were burnt. Anno Dom. 1531. in *Portugall* there was an earthquake for eight dayes, and it quaked seven or eight times each day; so that in *Lisbone* alone it cast downe a thousand and fifty houses, and more than fixe hundred were spoiled. *Ferrara* lately was almost wholly demolisht by a fearefull earthquake. Above all which ever have been heard is that prodigie which happened in the time of *Pliny*, at the death of *Nero* the Emperour in the *Marucine* field, the whole Olive-field of *Vectius Marcellus* a Roman Knight going over the high way, and the fields which were against it comming into the place thereof. Why should I mention the miracles of waters, from whose depth and streames, fires and great flames have oft broke forth? They tell out of *St. Augustine*, that the fire of the sacrifice, which for those seventy yeeres of the Babylonian captivity endured under the water, was extinguished, *Antiochus* selling the priest-hood to *Jason*. What miracle is this, that the fire should live in the water, above its force and naturall efficacy, and that the water should forget the extinguishing faculty! Verily Philosophers truely affirme that the elements, which are understood to bee contrary, and to fight in variety among themselves, are mutually joyned and tyed together by a marvellous confederacy.

The End of the Twentyfifth Booke.



OF THE
FACULTIES OF
SIMPLE MEDICINES.

AS ALSO
OF THEIR COMPOSITION
and Use.

THE TWENTY SIXTH BOOK.

THE PREFACE.



*A*mongst the causes which we terme healthfull, and other remedies which pertain to the health of man, and the expelling of Diseases, Medicines easily challenge the prime place; which (as it is delivered by Solomon) God hath produced out of the earth, and they are not to be abhorred by a wise man; for there is nothing in the world, which sooner, and as by a miracle, asswageth the horride torments of diseases. Therefore Herophilus called them fittingly administred, The hands of the Gods. And hence it was that such Physitians as excelled in the knowledge of Medicines, have amongst the Antients acquired an opinion of Divinity. It cannot by words bee expressed what power they have in healing. Wherefore the knowledge of them is very necessary not only for the prevention, but also for the driving away of Diseases.

The excellency of Medicines.

CHAP. I.

What a Medicine is, and how it differeth from nourishment.

WEE define a medicine to bee, That which hath power to change the body according to one or more qualities; and that such as cannot bee changed into our nature: contrary whereto we terme that nourishment which may be converted into the substance of our bodies. But we define them by the word power, because they have not an absolute nature, but as by relation and depending upon the condition of the bodies by whom they are taken. For that which is medicine to one, is meat to another, and that which is meat to this, is medicine to that. Thus for example, Hellebore is nourishment to the Quail, but a medicine to man: Hemlocke is nourishment to a Sterling, but poison to a Goose: the *Ferula* is food to an Asse, but poison to other cattell. Now this diversity is to be attributed to the different natures of creatures.

It is recorded in history, that the same by long use may happen in men. They report that a maide was presented to *Alexander* the great, who, nourished with *Napellus*, and other poisons, had by long use made them familiar to her, so that the very breath she breathed was deadly to the by-standers. Therefore it ought to seeme no marvaile, if it at any time happen, that medicines turne into the nature and nourishment of our bodies: for we commonly may see birds and swine feed upon serpents and toads without any harme: and lastly,

*Serpenti Ciconia pullos
Nutrit, & per devia rura lacerta:
Illi eadem sumptis quarunt animalia pennis.*

The Storke with Serpents and with Lizards caught,
In waylesse places nourisheth her brood:
And they the same pursue, when as they're taught
To use their wing, to get their wish't for food.

CHAP. II.

The differences of Medicines in their matter and substance.

The earth the
mother of ri-
ches and medi-
cines



EVEN as the concealed glory of worldly riches lyeth hid in the bowels of the earth, and depths of the sea and waters, as gold, silver, and all sorts of metals, gemmes and pretious stones, furnisht with admirable vertues; so we may behold the superficies of this earth clothed with almost an infinite variety of trees, shrubs, and hearbs: where wee may contemplate and wonder at the innumerable diversities of roots, leaves, flowers, fruits, gummes, their smells, pleasant tastes and colours, but much more at their vertues. This same mother Earth, as with her breasts, nourisheth marvellous distinct kindes of living creatures, various in their springing, encrease and strength. Wherein the immense goodnesse of God, the great Architect and framer of all things, doth most clearely appeare towards man, as who hath subjected to our government, as a patrimony, so ample and plentiful provision of nature for our delight in nourishment, and necessity of healing. Therefore the antient Phisicians have rightly delivered, that all sorts of medicines may bee abundantly had from living creatures, plants, the earth, water and aire.

what medicines
taken from li-
ving creatures.

Medicines are taken from living creatures either whole and entire, or else the parts and excrements of them. Wee oft times use in Phisicke whole creatures, as foxes, whelps, hedge-hogs, frogs, snails, wormes, crabbes, and other living creatures. Wee also make use of some parts of them, as the liver of a wolfe or goat, the lungs

lungs of the foxe, the bone of the stagges heart, *Cranium humanum*, fat, blood, flesh, marrow, the cods of the *Castor* or Beaver, which is therefore termed *Castoreum*, and such other particles that are usefull in Physicke. We know also that there are some medicines taken from excrements, as hornes, nailes, haire, feathers, skin; as also from urine, dung, spittle, hony, egges, waxe, milke, wooll, sweat, and others of this kinde, under which wee may comprehend muske, civet, pearle, *aspis*, and sundry others of this nature.

Wee take medicines from plants, both whole, and also from their parts, whether trees, shrubs, or herbes. For we oft times use succory, marsh-mallows, mallows, plantaine, and the like, whole: but otherwhiles onely the roots of plants, their pith, wood, barke, shoots, stalkes, leaves, flowers, seeds, fruits, juices, gummes, ro-sines, mosses, and the like. What from plants.

Things taken from the earth for the use and matter of medicine, are either earths, stones, or mineralls. The sorts of earth are Bole armenicke, *Terra sigillata*, fullers earth, chalke, potters clay, and such like. Stones are the pumice, Marchisite of gold, silver, brasse, marble, the load-stone, plaister, chalke, *sulphur vivum*, *lapis specularis*, and others. Metals and mineralls are gold, silver, tinne, lead, brasse, iron, Steele, antimony, cerusse, brimstone, cinnaber, litharge of gold and silver, tutty, true *Pompholix*, verdigreece, alume, romane vitrioll, coprose white and Greene, salts of sundry kinds, both the Arsenickes, and such like. What from the earth.

The following medicines are from fresh water, raine water, spring water, river water, and all things thence arising, as water lentile, common flagges, water lillies, water mints, and all the creatures that live therein. From the salt water are taken salt, *Alcyonium*, all sorts of corall, shels of fish, as also cuttle bones, sponges, and all creatures of the sea. From waters mixt of salt and fresh, the herbe *Androsace* (which growes in plenty in the marshes at *Fontignan* and *Cape de Sete*) *Asphaltum*, which is found in the dead sea. What from the water.

From the aire proceeds *Manna*, therefore called *mel aërium* (*i.e.*) hony of the aire, and also all other kinds of dew that are usefull in Physicke by reason of the vertues they receive from the sunne which raiseth them up, from the aire, whereas they make some stay, as also from the plants, whereupon they fall and reside. What from the aire.

CHAP. III.

The differences of simples in their qualities and effects.

ALL the mentioned sorts of simples are endued with one or more of the foure faculties, whereof I now purpose to treat.

The first faculty common to all the rest, and as it were their foundation, flowes from the foure first qualities of the prime bodies or elements, that is, heat, coldnesse, drynesse, and moisture, and this either simple or compound, as one or two of these prime qualities exceed in the temper of the medicine, as it may appeare by the following tables.

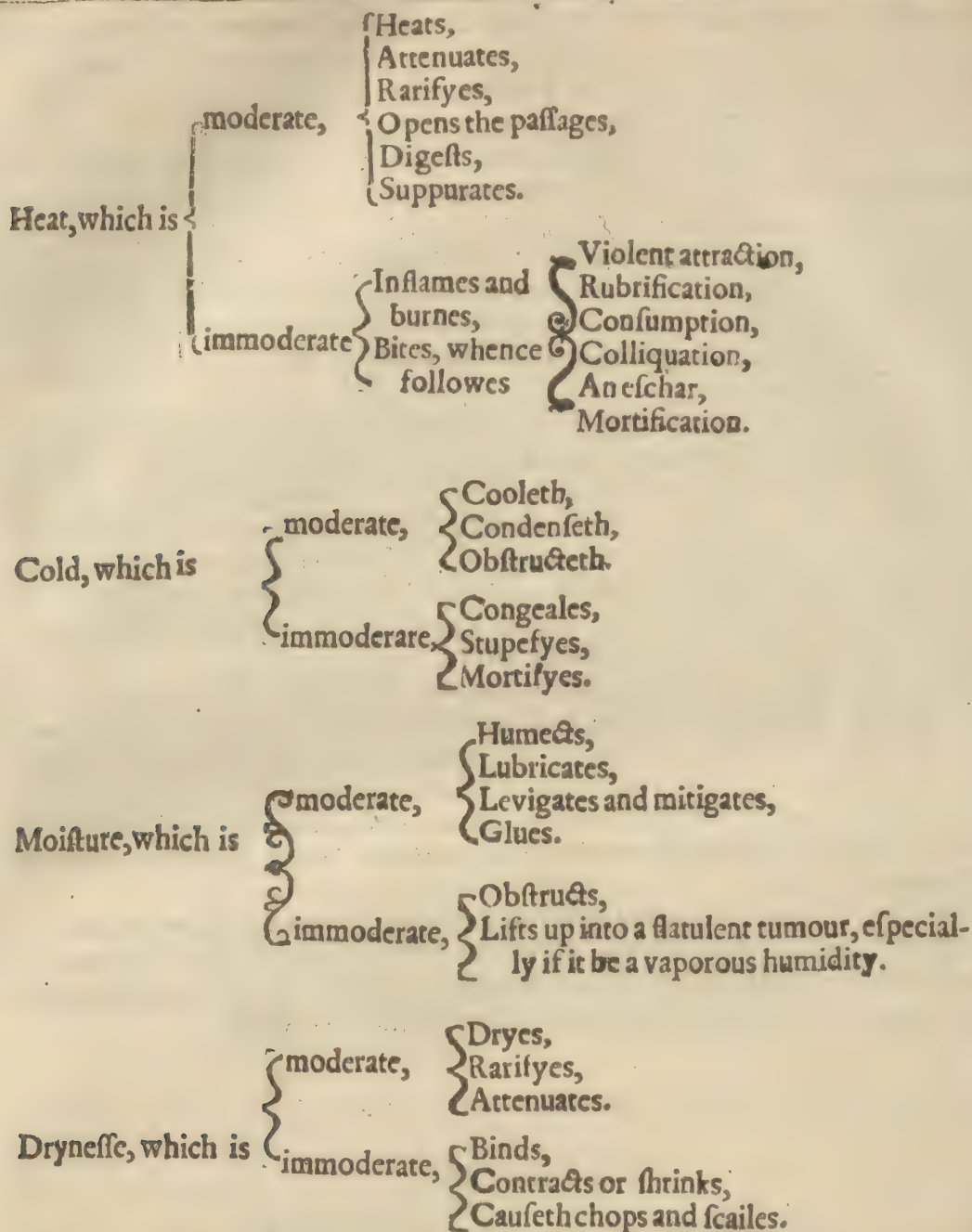
The simple quality
is either to

{ Heat,
Coole,
Humect,
Dry.

The compound, arising from
two joyned qualities, either

{ Heats and dries,
Heats and moistens,
Cooles and dries,
Cooles & moistens.

Heat



*s. Simp. & I. de
aliments.*

The effect of these qualities is distinguished, and as *Galen* observes, digested into these orders, which we term Degrees; so that by a certaine proportion and measure, they may serve to oppugne diseases, as the same *Galen* affirms. For to a disease (for example) hot in the second degree, no other medicine must be used than that which is cold in the like degree: Wherefore all simple medicines are,

Hot, Cold, Moist, Dry, { in the { Beginning, Middle, Extreme, } of the { first, second, third, fourth, } degree.

The { Heat, Coldness, Moisture, Dryness } of the { first, second, third, fourth. } degree, is { Obscure, Manifest, Vehement, Excessive.

*Examples of
the degrees of
heat.*

An example of heat distinguished thus by degrees, may be thus, Warme water is temperate; that which is a little hotter, is in the first degree of heat; if manifestly hot, it is in the second degree; but if it heat more vehemently, it may be thought to come

come to the third, but if it scald, then we know that it hath arrived to the fourth degree of heate. Such also is the distinction of coldnesse, moisture, and drinesse, by their degrees. Wherefore it will be worth our labour, to give you examples of certain medicines, distinguished in their order and degree, by which you may the more easily give conjecture of the rest.

Simple Medicines hot in the

First degree.

Absinthium.
Althea.
Amygdala dulcia.
Beta.
Brassica.
Chamamelum.
Ladanum.
Semen Lini.
Saccharum.
Ervum, sive Orobus.

Vinum novum: For old is judged hot in the second or third degree, as it is more or lesse yeares old.

Second degree.

Ammoniacum. *Apium.*
Arthemisia. *Chamaepytis.*
Anethum. *Crocus.*
Fœnugracum. *Ficus.*
Mastiche. *Thus.*
Salvia. *Myrrha.*
Marrubium. *Mel.*
Melissa. *Nux moschata.*
Pix utraque tum arida corporibus particu-
lisque solidioribus aptior, tum liquida de-
licatioribus.
Scilla. *Sal.*
Sarcocolla. *Opopanax.*
Bryonia. *Ammi.*

Simples hot in the

Third degree.

Abrotanum.
Agnus castus.
Anisum. *Asarum.*
Aristolochia.
Chamadrys.
Sabina.
Calamintha.
Cinamomum. *Iris.*
Juniperus.
Hyssopus.
Origanum.
Sagapenum.
Chelidonium majus.
Ruta saliva.

Fourth degree.

Allium.
Cepa.
Euphorbium.
Nasturtium.
Pyrethrum.
Sinapi.
Tithymalli.
Anacardi.
Chelidonium minus, Galeno. Yet ours, by reason of the gentleness of the ayre, & moisture of our soile, is not so acride.
Ruta sylvestris. This, as all wilde and not cultivated things, becomes more strong and acride than the Garden Rue.

Simples cold in the

First degree.

Atriplex.
Hordeum.
Cydonia mala.
Malva.
Pyra.
Pruna.
Rosa.
Viola.

Second degree.

Acacia. *Cucurbita.*
Cucumis.
Mala granata acida, dulcia enim temperata sunt potius.
Plantago.
Polygonum.
Solanum hortense, nam id quod somniferum dicitur, vi refrigerandi ad papaver accedit.

Third degree.

Hyoscyamus.
Solanum somniferum.

Fourth degree.

Cicuta.
Papaveris genera omnia, excepto Cernicula-

Third degree.

Portulaca.
Sempervivum.
Mandragora.

Fourth degree.

to, huic enim incidendi & abstergerendi vim attribuit Gal. Ceriè nitrosum & salsum gustu percipitur, quo fit ut calida & sicca sit natura.
Opium.

Simples moist in the

First degree.

Buglossum.
Viola.
Malva.
Rapum.
Spinacia.

Second degree.

Ammoniacum.
Lactuca.
Cucurbita.
Cucumis.
Melones. *Portulaca.*

Simples dry in the

First degree.

Thus.
Chamamelum.
Brassica.
Sarcocolla.
Crocus.
Faba.
Fenugracum.
Hordeum integrum.

Second degree.

Artemisia. *Pix arida.*
Orobis. *Plantago.*
Balaustia. *Nux moschata.*
Lens.
Mastiche.
Mel. *Sal.*
Anethum.
Myrrha.

Third degree.

Abrotonum ustum.
Abanthium. *Myrtus.*
Acetum. *Aloe.*
Milium. *Cuminum.*
Sanguis draconis.
Galla. *Sabina.*

Fourth degree.

Piper.
Allium.
Nasturtium.
Sinapi.
Eupherbium.

The effects of
the first quali-
ties by acci-
dent,

Those we have mentioned have of themselves and their own nature all such qualities, yet doe they produce farre other effects by accident, and besides their owne nature in our bodies, by reason of which they are termed accidentall causes. This shall be made manifest by the following examples.

Externall heat by accident refrigerates the body within, because it opens the passages and pores, and calls forth the internall heate, together with the spirits and humours by sweats: whence it followes, that the digestion is worse, and the appetite is diminished. The same encompassing heate also humects by accident, whilst it diffuses the humours concrete with cold: for thus Venery is thought to humect.

The like may be said of Cold, for that it heates not by its proper and native, but by an adventitious force: whereof you may make tryall in Winter, when as the ambient cold, by shutting the pores of the body, hinders the breathing forth and dissipation of the native heat. Whence it is inwardly doubled, and the concoction better performed, and the appetite strengthened. This same cold also dries by accident, when as it by accident repercusses the humour that was ready to flow down into any part, and whilst it concretes that which is gathered in the part: for thus by the immoderate use of repercussers, an oedematous tumour, proceeding from gross and viscid phlegme, degenerates into a *scirrhus*.

Driness and moisture, because they are more passive qualities, shew their effects by not so manifest operations, as heate and cold doe; but in comparison of them they are rather to be judged as matter or a subject.

CHAP. IV.

Of the second faculties of Medicines.

He terme those the second faculties of Medicines, which have dependance upon the first, which are formerly mentioned, as it is the part

| | | | | | | | |
|----------------|---|------------|---|----------------|---|--------------|---|
| Of Heate to | { | Rarefie, | } | Of Cold to | { | Condense, | } |
| | | Attract, | | | | Repercusse, | |
| | | Open, | | | | Shut up, | |
| | | Attenuate, | | | | Incise late, | |
| | | Levigatē, | | | | Exasperate, | |
| | | Cleanse. | | | | Constipate. | |
| Of Moisture to | { | Soften, | } | Of Drinesse to | { | Harden, | } |
| | | Relaxe. | | | | Stiffen. | |

Hence we terme that an attractive medicine, which hath an attractive faculty, as on the contrary, that a repulsive, that repels; a detergent, that which cleanses viscous matter. We call that an Emplastick medicine, which not only shuts up the pores of the body, but reduces the liquid bodies therein contained to a certaine quality of substance. Thus also emollients, relaxers, and the rest, have their denominations from their effects, as we shall declare hereafter.

CHAP. V.

Of the third faculties of Medicines.

He third faculty of medicines depends for the most part upon the first and second faculties, sometimes conjoynd, otherwhiles separate. Also sometimes it followes neither of these faculties, but a certaine property and inexplicable quality, which is only knowne by experience. Now the operations of this third faculty are to agglutinate, to fill with flesh, to cicatrize, to assuage paine, to move or stay the urine, milke, seed, the courses, sweats, vomits, and performe such like operations in or about the body.

Thus the generation of flesh is produced by the concurrence of two faculties, that is, of drying and cleansing. But drinesse and astringion produce a glutinating and cicatrizing faculty. A hot and attenuating faculty causeth sweats, moves urine, the courses, and the like in the body; but contrary faculties retarde and stop the same.

To mitigate paine, proceeds only from the first faculty, to wit, from heate, or a moderately heating faculty; to procure rest, from cold onely, or coldnesse joyned with some moisture. But to procure vomit, proceeds neither from the first nor second faculty, but from a certaine occult and essentiall property, which is naturally implanted in Agaricke, and other nauseous and vomitory medicines.

CHAP. VI.

Of the fourth faculty of Medicines.

He fourth faculty of medicines is not of the same condition with those that are formerly mentioned; for it depends not upon them, or any other manifest or elementary quality, but on an occult property of the whole substance, by meanes whereof, it workes rather upon this than that part, upon this rather than that humour. Wherefore Physitians cannot by any reason finde out this faculty, but only by experience, as we have said a little before of medicines.

Ssss

dicines

dicines procuring vomit. Hence it is, that names are given to those medicines from those parts that they chiefly respect: For they are termed Cephalicks, which respect the head, as Betony, Marjerome, Sage, Rosemary, *Stachas*: Pneumonicks, which respect the Lungs, as Liquorice, sweet Almonds, Orris, Elecampane. Cordials, that strengthen the heart, as Saffron, Cinamon, Citrons; but chiefly their rindes, Buglosse, Corall, Ivory. Stomaticall, which respect the stomacke, and the orifice thereof, as Nutmegs, Mint, Anise, Masticke, Pepper, Ginger. Hepaticks, which respect the Liver, as Wormwood, Agrimony, Spikenard, Succory, Sanders. Spleniticks, which have relation to the spleene, as Time, *Epithymum*, Broome flowers, Cetrach, Capers, the barke of their rootes, the barke of Tamariske. Diureticks, such as respect the kidneyes and urinary passages, as the rootes of Smallage, Asperagus, Fennell, Butchers brome, the foure greater cold seeds, Turpentine, Plantaine, Saxifrage. Arthniticks, or such as strengthen the joynts, as Cowslips, *Chamapytis*, Elecampane, Calaminte, Hermodactiles, and the like.

To this ranke may be referred purging medicines, which, furnished with a specificke property, shew their efficacy on one humour more than another humour, and that impact more in one part than in another. For thus Agricke chiefly drawes phlegme from the head and joynts, Rubarbe drawes choller chiefly from the Liver, and hurts the kidneyes. But let us here forbear the consideration of such things, as not appertaining to Surgery. But some medicines of this kinde are furnished with one simple faculty, other some with more, and those contrary, whereof your taste may give you sufficient notice: for Rubarbe at the first touch of the tongue is found acride and hot; but when you come to chaw and thoroughly to taste it, you shall find it to partake of an earthy astringtion. Therefore because tastes give notice of the faculties of medicines, therefore I have thought good to treat of them briefly.

CHAP. VII.

Of Tastes.

Lib. 1. simpl.

Differences of tastes.



Taste, as *Galen* delivers according to *Aristotle* and *Theophrastus*, is a certaine concoction of moisture in driness, caused by meanes of heate, which we know or discern by the tongue well tempered, and fittingly furnished with spittle and his nerves. There are nine differences of tastes; for there are three judged hot, to wit, the acride, bitter, and salt: three cold, the acide, austere, and acerbe: three temperate, the sweet, the oily or fat, and the insipide. Now they are thought so many, according to the different degrees of concoction; for it appeares greater in hot tastes, and as it were a certaine assation, but lesse in cold, but indifferent, and as it were an elixation in things temperate: therefore Nature observes this order in the concoction of sapide bodies, that at the first the acerbe taste should take place, then the austere, and lastly, the acide; from these (as it were) rudiments of concoction, arises an insipide, then an oily, then a sweet perfectly concocted and temperate. This concoction exceeding the bounds of mediocrity, there arises a salt taste, then a bitter, and then an acride with the highest excessse, of almost a fiery heate. Yet I would be thus understood, that all things that are by nature sapide, do not alwayes ascend to the height of sweetnesse by the degrees of acerbity, austerity, and acidity, as though it were of absolute necessity, that all things that are sweete, they should first bee acerbe, austere, and acide. For there are many things found, especially in plants and their fruits, which when they shall arrive to their perfection and maturity, are acide, bitter, or salt, but being yet unripe, and not come to full perfection, they have a certaine sweetnesse, which afterwards, by a further digestion, or perfection and concoction, acquire a bitter, austere, or acide taste. For thus bitterness in Wormwood and Aloes, acrimony in Pepper or Pellitory, is a perfection of nature, a full ripenesse and perfect concoction, and not an excessse of heate in that species. Also acerbity and austerity is a perfection of nature, and not a rudiment

rudiment in Services and Cornelians; acidity or tartness is also so in verjuice. But in very many things it so falls out, that the sweet or fatty taste become so, and acquire their perfection by concoction, as in Grapes, Figges, Peares, Apples, and almost all other such fruits, as we usually feed upon. Therefore I will now treat of each of them in order, first beginning with the cold tastes.

The acerb taste is cold and terrestriall, and of a substance absolutely grosse, being ^{The acerb taste.} less humid than the austere, but much less than the acide. It notably cooles and dries, it condensates, binds, repels, especially from the superficies, and it also exasperates; this taste resides, and may be found in Pomegranate pils, Galls, *Sumach*, and Cypresse nuts.

The austere is nighest in temper and effects to the acerb, but somewhat moisture; ^{The austere.} for the acerb absolutely consists in a terrestriall & cold substance. Wherefore this, increased by a degree of concoction, acquires more store either of heate alone, or else of moisture alone, or else of both together: moisture, I say, and that is either ayery, or else watry. Therefore if these fruits, which before their maturity are acerb, have an accession of heate, then doe they become sweet, as you perceive by Chescnuts; but if there be an accession of moisture only, and that more grosse, of acerb they become austere: for both the tastes are in the like degree of cold, but the austere is the moisture. But if to the same frigidity remaining in fruits, a certain subtle humidity accrew, then is there caused an acide taste. But if they have an accession of a watrish moisture and heate, they will acquire a sweet taste, or else oily, if the humidity accrewing with the heate be ayery.

I have judged it requisite to admonish you hereof, that you might know by what meanes sapide bodies mitigated become sweet of acerb, as it were by these interposed degrees of austerity, acidity, and oilyness, as they acquire a various accession of heate and moisture separately, or conjunctly.

Now by all that we have delivered, you may gather, that all acerb and austere things are cold and dry; and as they are cold, they repell and hinder defluxions: as they are dry and terrestriall, they condensate, incrassate, constipate, and straiten the passages; yea, and they also cicatrize: but acerb things performe this farre more powerfully, as those which are absolutely terrene, cold, and dry, not partaking of moisture, or water. Now austere things consist (as it were) in a middle matter, that is, in a more dilute terrene body, as it is apparent in Services, unripe Grapes, Cornelians, Medlars, Crabs, wilde Peares, and all sorts of unripe fruits, whence it is termed a crude taste.

The acide taste is of a cold and watrish nature, but most subtle, by benefit whereof ^{The acide taste.} it penetrates, and divides almost as powerfully as the acide. It incides, or divides, attenuates, bites, cleanses, opens obstructions, repels and dries. For by the meanes of the deep piercing cold, it repels all defluxions; and by the drying faculty, which is strong even in its watry consistence, it stayes and stops all bleedings, the hæmorrhoides and dysenteries. The force thereof is chiefly manifest in Vinegar, as also in the juice of Citrons, Sorrell, Cherries, Berberries, and the like. And this is the nature of cold tastes, now it is time we speake of such as are temperate.

The insipide is improperly termed a taste, as that which is rather a privation of ^{The insipide.} tastes, it is in some sort cold, and of a very watrish and grosse nature, it inspissates, constipates, and stupifies. This kinde of taste is chiefly manifest in water, and next in Gourds, Citruls, and many such like things.

The oily taste is hot, humid, and ayery; therefore it humects, relaxates, molli- ^{The oily.} fies, lubricates. Of this kinde are oyle, butter, fat which is not raucide by age, nor acride by nature, as that of Lyons and Foxes.

The sweet taste is made by a moderate and well concocting heate, consisting in a ^{The sweet.} matter more tenuious and hot than the insipide, but in somewhat more grosse than the oily, from which in the first qualities it doth not differ; therefore it is of a hot, ayery, and temperate nature. Therefore every sweet thing detergeth, levigates, concocts, ripens, relaxes, and asswageth paine. Examples of this taste may be had in Sugar, Honey, Manna, sweet Almonds, Milke, and other like. Now let us come to hot tastes.

The salt.

The salt taste is hot and astringent, lesse earthy than the bitter, as that which resides as it were in a middle matter. For it proceeds from an earthy driness, which is formerly torried & attenuated by the force of heate in a watry humidity. Wherefore that which is salt contracts the pores, cuts, cleanses, digests, or rather dries up the humours by the driness thereof, without any manifest sense of heate, whence it is, that it vindicates from putrefaction. Under this kinde are contained all sorts of salt, as salt-Peter, *niter*, *sal Ammoniacum*, *sal gemme*, common salt, sea water, and such other like.

The bitter.

The bitter taste is hot, earthy, and drying, for the matter thereof is grosse and earthy, which the abounding heate hath torried and dried up. Wherefore bitter things taken inwardly, purge and carry away superfluous humours: and outwardly applied, they mundifie and deterge ulcers, they open the mouthes and passages of the veines oft-times by their abstergent faculty; whence it is that they move the courses and hæmorrhoides. The principall things indued with this taste are Aloes, Gall, Wormwood, Gentian, the lesser Centaury, Coloquintida, Fumitory, Soor, and such like.

The acride.

The acride taste is hot, of a subtle and fiery nature; for it is kindled of a hot, subtle, and dry matter, neither can it consist in any other. Therefore that which is acride, heats, prickles or bites the mouth by the acrimony, it heates, and oft-times burnes, it penetrates, opens the passages, attenuates, attracts and drawes forth grosse humours, evacuates and sends forth urine, the courses, and sweat: besides it oft-times is septicke, blistering, and escharotick; and lastly, burning, and causticke. The septicke & putrefactive things are sublimate, *Chamalea*, the juice of *Thapsia*. The vesicatories are Dittander, Cantharides, Crowfoot, Mustard, Pellitory of Spaine, *Euphorbium*. But the causticke and escharoticke are Lime, Oake ashes, and the like.

But wee know medicines not onely by the taste, but also by our other senses, as touch, sight, hearing, smell. And as by the taste, so also by these we judge of and try the goodnesse of medicines, and distinguish the true legitimate from the adulterate. The touch judges what are hot and cold, moist and dry, rough and gentle, or smooth, hard and soft, brittle or friable, glutinous and viscid, dry or slippery. We approve of the goodnesse of medicines by their colour, brightnesse, or duskinnesse, whereof the eye is judge; for wee commend that Senna which is somewhat greenish, but dislike the whitish: as also we like well of such Cassia as is blacke both within and without, shining and full, and not dry and shrunk up. Yet the judgement of the first qualities, by the colour is deceitfull, or none at all; for such things as are white, or of the colour of Snow, are not therefore cold: for sundry of them are hot, as Lime. Neither are red things to be therefore judged hot; for Roses coole. Also medicines are chosen by the smell; for such as have a good, fresh, and naturall smell, are commonly hot, and in their perfect vigour. On the contrary, things that want smell are for the most part cold and evanide. By hearing we distinguish things full from such as are empty: thus we choose Cassia, which shaken, makes no noyse with the grains or seeds ratling in it. Hitherto we have explained the first, second, third, and fourth faculties of medicines in generall, & have shewed how they may be found out: now must we more particularly treat of their second and third faculties, because by reason of these they chiefly come into use in Surgery: Yet let mee first briefly shew by what meanes and arts they may be prepared.

CHAP. VIII.

Of the preparation of medicines.

To prepare medicines, is nothing else, than by art to make them more commodious for use and composition, whereby they are eyther made

| | | | | |
|-----------------------|---|--|-----------------------|---|
| More gentle. | By bruising, as when medicines are broke by striking and rubbing or grinding in a mortar, & that either of | Brasse, Iron, Lead, Glasse, Wood, Marble, & other like. | confide- ring | The thing which is to be beaten. The strength or force wherewith it must be performed. The time or space. The situation. The things to be added. The consistence which the thing beaten must be of. |
| More strong. | By searſing, whereby we separate the pure and finer from the more impure and groſs, which is done by ſives and ſearſes, made of | Wood, Parchment, Horſe haire, Silke, Lawne. | | Wherein is to bee noted, that the ſame conſideration is to bee had in ſearſing, as in beating; therefore ſuch things as are to bee finely powdred, muſt bee ſearſed in a finer ſearſe: ſuch as are more groſſe, in a courſer. |
| More pleaſant. | By diſſolving or molli- fying. | Which is nothing elſe but a diſſolving of a ſimple or compound medicine, of a thick or hard conſiſtence, either into a mean conſiſtence, or a little more liquid or ſoft, which is performed | | Either by heate onely; for by heate gums and hornes are molliſied: or by liquor, as by vinegar, water, wine, juice of Lemmons, &c. |
| More wholeſome. | By deſiccation, or hardening, which | Is nothing elſe, but the conſuming of the ſuperfluous and hurtfull moiſture, and this is performed, either | | By the Sun, or By Fire. |
| | By infuſion, which is nothing elſe but the tempering or macerating of a medicine a little beaten or cut, in ſome liquor appropriate and fit for our purpoſe, as in Milke, Vinegar, Water, Oyle, and the like, ſo long as the nature of the medicine requires. To infuſion | | | Nutrition may bee reduced, which is nothing elſe, but as it were a certaine accreſſion of the medicine, by being moiſtened, macerated, rubbed, or ground with ſome moiſture, eſpecially w th heate. |
| | By burning, that is, by conſuming the humidity which is in them. And that, either that they may be the better powdred, being otherwiſe too glutinous, or that they may lay aſide their groſſe eſſence, and become of a ſubtler temper; or that they may put off, or partly loſe ſome fiery quality, as acrimony, <i>Gal. lib. 4. cap 9. ſimplicium</i> . Or that they may acquire a new colour. Now all things are burnt, eyther | | | Alone, as ſuch things as have a fatty moiſture, as haire, ſweaty wooll, hornes: Or elſe with ſome combuſtible matter, as ſulphur, alome, ſalt, barley, &c. |
| More fit for mixture. | By boyling or elixation, which is performed by a humide heate, as burning is by a dry, & that either that wee may increaſe the weak faculties of ſuch medicines as are boyled, by boyling them with ſuch as are ſtronger; or elſe to weaken ſuch as are too ſtrong, or elſe wholly to diſſipate ſuch as are contrary: Or that one faculty may ariſe of ſundry things of different faculties being boyled together, or for the longer keeping them, or bringing them to a certaine forme or conſiſtence: all which are done, eyther by the | | | Fire, or Sun. |
| | By waſhing or cleaſing, whereby the impurity of the medicine is waſted away or cleaſed, and ſuch things are eyther | Hard, as metals, ſtones, parts of living creatures, condensed juices, & other like: Or ſoft, as Roſines, Gums, Fats, Oyles. | And theſe ought firſt | To be finely beaten, that the water may penetrate into all their ſubſtance. Or to be diſſolved, & caſt into a veſſell filled with water, and ſo ſtirred, & then ſuffered to ſubſide, ſo that the fat may ſwim aloft: and this muſt be done ſo long that the water retaine nothing thereof in colour, ſmell, or taſte. |

All which are performed

CHAP. IX.

Of repelling, or repersussive medicines.

Astringents are understood by the name of repellers.

The differences of repersussives



Repelling or repersussive medicines are cold, and of grosse and earthy parts; by which name also astringent medicines are understood, because they hinder the falling downe of the humours upon the part. Repersussives are such, either of their nature and of themselves, or else by accident, being not such of their own nature. These which of themselves are such, are of two kinds; for some are watrish & moist, without any astringitive faculty, which almost wholly proceeds from an earthy essence; wherefore that faculty of repelling which they possesse, they have it wholly from coldness. Of this kinde are lettuce, purslane, sow-thistle, duckes-meat, kidney wort, cowcumbers, melons, gourds, house-lecke, mandrake apples, night-shade, henbane, and the like, which coole powerfully, and unlesse they be taken away before the part waxe blackish, they extinguish the naturall heat. Other some are of an earthy essence, and therefore astringitive; but yet some of these are hot, other some cold. Such things as are cold of temper, and of an earthy consistence, are properly and truly termed repellers. Of these, some are simple, other some compound: the simples are plantaine, vine leaves, leaves of roses, oakes, brambles, cypresse, berberies, *sumach*, all unripe fruits, verjuice, vinegar, red wine, the juice of lower pomegranats, *acacia*, the juice of barberries, and quinces, *hypocistis*, pomegranate pills, oake barke, the flowers of wilde pomegranates, the meale of barley, beanes, panicke, oats, millet, *orobus* mixed with juices in forme of a pultis, bole armenick, *sanguis draconis*, cerusse, litharge, *terra sigillata*, fullers earth, chalke, marle, the load-stone, lead, coralls, all marchisites, antimony, *spodium*, true *pomphilix*, all sorts of earth, and other things of the like nature.

Why things of subtile parts are oft times mixed with repersussives.

Repellers by accident.

When, and to what parts repersussives must be applied.

Now compound things are *oleum rosaceum*, *omphacinum*, *mirtillorum*, *papaveris*, *cidoniorum*, *nenupharis*, *unguentum rosatum*, *album rhafis*, *camphoratum*, *emplastrum diacalcitheos*, dissolved in vinegar and oile of roses, *desiccativum rubrum*, *populeon*, *emplastrum nigrum* seu *tetrapharmacum* of Galens description, *empl. contra rupturam*, *de cerusa*, *pro matrice*. All such cold repersussives are more effectually if they be associated with tenuity of substance, either of themselves, or by mixture with some other things: for to this purpose we often mixe vinegar, camphire, and the like things of subtile parts, with repersussives of grosse parts, that they may serve as vehicles to carry in the repersussives faculty. Repersussives of grosse parts and hot, are wormwood, centory, gentian, agrimony, savin, coriander, mint, bay leaves, cardamomes, *calamus aromaticus*, aloes, spikenard, saffron, nutmeg, cinamon, amber, salt, alome, coporose, sulphur, *oleum absinthinum*, *mastichinum*, *nardinum*, *costinum*, *ceratum*, *Gal. stomachicum*, *santalinum*, *emplastrum diacalcitheos*. But such things as repell by accident, are bandages, compresses, linnen cloaths, and rowlers of all sorts, caes, cauteries, blood-letting, cupping, painefull frictions in the opposite parts, and other such like things as are properly said to make revulsion. The use of repersussives is to force backe the humour which flowes from any other place into the part, and thus they mitigate the heat of such inflammation as that de fluxion of humors hath caused, yea oft times to assuage and helpe paine, the feaver, abscesse, maligne ulcers, and mortification. Such repersussives must alwaies bee so opposed to the disease, that respect may bee had to the temper, complexion, and particular nature of the part whereto they are applied; for all parts cannot equally beare the like force of repersussives, as nervous & other spermatick and cold parts. Furthermore, there are some parts whereto wee may by no meanes apply repersussives, as the groines, arme-pits, and those glandules or kernells which are behind the eares and braine, lest the humour should retire backe into some of the principall parts: the like reason is also of bodies, for the bodies of women, children, eunuches, cannot endure so strong repersussives and the like excesse of cold as manly and vigorous bodies may. Besides, every disease requires not repersussives, for if the body bee repleat with ill humours, if it bee plethorick

thoricke, the use of repercussives, unlesse after generall purgation, cannot be safe; as neither if the humour which is in motion shall be venenate, grosse, acrid, criticall, or shall cause great paine in the part, for then on the contrary wee must rather make use of attractives. But now if the disease be great, weake repercussives will availle nothing against it, as lettuce against a great inflammation; and thou shalt doe ill if thou set upon a small defluxion with powerfull repellers; for by that meanes the skin is straitened, and the passages thereof stoppt, whereby the inflammation is encreased, or else brought to a *schirrhus*. Wherefore let the Chirurgicalian have a care that hee temper the force of his Repercussives according to the magnitude of the disease.

CHAP. X.

Of attractive medicines.

AN attractive medicine is contrary to the repeller; the greeks call it *Helcti-* What an attractive medicine is.
cum, it is of a hot and thin substance, whereby it draweth forth into the superficies of the body that which lyeth hid in the center, although sometimes it doth it by an occult quality; other whiles also by accident, as by the acrimony. Those things which by a manifest quality doe attract, are either simple or compound.

The simple are *Bryonia, allium, capa, porrum, arastolochia, hermodactyli, ciclamen, lili- Attractives by a manifest quality.*
um, sigillum beate Mariae, arum, asarum, asphodelus, gentiana, pyrethrum, ruta, sabina, calamentum, omnes tithymalorum species, viscum, abrotanum, anagallis, urtica, ranunculus, struthium, and such like: ammoniacum, bdellium, gabbanum, sagapenum, euphorbium, asphaltum, cinis e face vini vel aceti, calx viva, sulphur, sal ammoniacus, omnes salis species, auripigmentum, oleum vetus, adeps leonis, ursi, canis, anseris, viperae, ranarum, axungia porci vetustate acris, aut attriturotarum. Composita vero, ut oleum de spica, philosophorum, de terebinthina, de croco, de scorpionibus, rutaceum, vulpinum, laurinum, anethinum, de vitriolo, unguentum Agrippae, aragon, seu auxiliare, martiatum, enulatum, theriaca, mithridatum, empl. de meliloto, diachylon magnum & parvum, oxycroceum, divinum.

Those things which draw by a secret property in nature, as are the load-stone, quick-silver, pyony, amber, all antidotes and treacles that are remedies against the bitings of venomous beasts, and all purging medicines. By an occult.

These which draw by accident, performe it otherwise than of their owne nature, they have that quality out of putrefaction and corruption, as doves dung, goats dung, cow dung, mans dung, and all kinde of dungs: also leven, old cheese, and such like. By accident.

Cupping glasses, leaches, syringes, rougher and harder frictions, sucking, paine, straight ligations, cauteries doe also draw, but after a different manner from them spoken of before.

Attractive medicaments must neither burne nor discusse, and being very strong and sharpe, they should bee tempered and mixed with oyle of roses, and other lenitives: but to weake ones should be added oyle of bayes, *calx viva*, and such like to strengthen them. The use of attractives is to draw poyson toward the skin, & to hasten forward criticall abscesses; and they make those parts which were benumbed and consumed, to have life, they restore the refrigerated parts by drawing thither the spirits; they draw forth the viscous filth of malignant ulcers that lies hid in the nerves, and hollow passages of them; they also draw out scales of bones, splinters of wood, nailes, thornes, arrowes, and that matter which is impacted in hardened inflammations. Their use.

CHAP. XI.

Of resolving medicines.

What a resolving medicine is.
The differences thereof.



That is called a resolving medicine, which by heat, and the tenuity of his substance openeth the pores, attenuates the humours, dissipates and diffuseth by evaporating the unprofitable matter. There are two sorts of these kinds of medicines, the one is called *Aræoticum* or rarifying; the other is termed *Diaphoreticum* or digesting.

The *Aræoticum* by a meane heat, and not dry, and endued with a tenuity of substance, openeth and relaxeth the skinne, and draweth forth the matter shut up under it, whereby it may ease paine, like as Anodines, because it doth not much depart from a temperate heat.

But the *Diaphoreticum* being much hotter, whatsoever sticketh in the part being there impacted, it doth by thin vapour insensibly dissipate: therefore the acrid and hot things are in this case to be made use of rather than attractives, because that cold and grossnesse is more difficultly to be digested, and the length and involution of the waies being to be considered. The *Aræoticke*, which we may call weake resolvers, are either simple or compound.

The simples are these, *bismalva tota*, *parietaria*, *adanthum*, *mercurialis*, *ebulus*, *valeriana*, *rosmarinus*, *salvia*, *thymus*, *chamamelum*, *melilotum*, *anethum*, *farina bordei*, *tritici*, *seminis lini*, *fanugraci*, *nigella*, *furfur*, *adepts gallina*, *anseris*, *anatis*, *cuniculi*, *vituli*; almost all metalls unlesse such as are acrid. The compounds are *oleum chamamolinum*, *anethinum*, *liliaceum catellorum*, *lumbricorum*, *Keirinum*, *de vitellis ovorum*, *de tritico*, *amygdalarum dulcium*, *Unguentum de althæa*, *empl. diachylum*, *ireatum*. *Diaphoretickes* or digestives, are also both simple and compound: the simple are *Aristolochia*, *enula campana*, *iris*, *cæpa*, *scylla*, *sigillum Salomonis*, *sigillum beatae Mariae*, *bryonia*, *panis porcinius*, *dracunculus*, *asphodelus*, *origanum*, *mentha*, *pulegium*, *sabina*, *serpillum*, *calamentha*, *hyssopus*, *urtica*, *arthemisia*, *lavendula*, *chamepytis*, *anisum*, *fæniculum*, *cuminum*, *piper*, *nux moschata*, *coriandrum*, *bacca lauri* & *juniperi*, *farina fabarum*, *lupinorum*, *orobi*, *mili*, *frumenti*, *furfur*, *mica panis*, *acetum tepidum*, *oxycratum*, *vinum vetus aut aromaticum*, *mel*, *aqua vita*, *muria*, *adepts tauri*, *equi*, *leonis*, *canis*, *birch*, *medulla cervi*, *cruris bovis* & *arietis*, *ammoniaccum*, *galbanum*, *opopanax*, *sagapenum*, *myrrha*, *bdellium*, *thus*, *terebinthina*, *pix nigra*, *ladanum*, *styrax*, *calamita*, *benioinum*, *stercus caprinum*, *columbinum*, *caninum*, *bubulum*, & *aliæ stercorum species*.

Compound diaphoretickes are *oleum amygdalarum amararum*, *juniiperinum*, *laurinum*, *de scorpionibus*, *irinum*, *costinum*, *nardinum*, *de terebinthina*, *de croco*, *canabinum*, *raphaninum*, *de cucumere agresti*, *vulpinum*, *rutaceum*, *philosophorum de lateribus*, *de euphorbio*, *de tartaro*, *de petroleo*, *de kerva*, *sive ricininum*, *unguent. Agrippæ*, *aragon*, *martiatum*, *enulatum*, *empl. de Vigo*, without addition, and with addition, *oxycroceum*, *diacalcitheos*, dissolved in a digesting oyle to the forme of a cerat.

Aræotickes are profitably used in the increase and state of superficiall tumours.

The use of diaphoreticks.

But *Diaphoretickes* are not to bee used in the encrease of tumours, unlesse some astringent bee added, lest by their more strong digestion, they should draw and increase the defluxion: but when the tumours decline, they are then onely to be used in the parts chiefly where the skinne is dense and hard, and when the humour is cold and grosse, and lying hid deep in the body, so that the vertue of medicaments can hardly come thereto: but consideration is to bee had of the parts to which resolutives are to be applied; for you may not apply relaxers or diaphoretickes to the liver, spleen, stomacke, or bowels, unlesse you adde some astringents, of which a great part must be aromatickes.

To the parts where sense is more dull, may be applied the stronger diaphoreticks, but those parts which are endued with a more exquisite sense, as the eye and the nerves, to them we must apply weaker. When the matter is grosse and cold, things cutting and attenuating, and then emollients are to be used, and so by degrees come to diaphoretickes; otherwise that onely is resolved which is the most subtile of the unprofi-

unprofitable matter, the grosser becoming concrete and hardened. But if the part be afflicted with a continuall defluxion, so that there may be danger of a gangrene or sphacel, it is not lawful then to make use of resolvers, but you must in the place where the humour flowes, devide the skin by scarification, as it is most learnedly noted by *Hollerius* in that profitable booke of his left to posterity, whose title is, *De materia Chirurgica*.

CHAP. XII.

Of suppuratives.

Suppurative medicine is said to bee that, which shutting the pores, and preventing transpiration by his emplasticke consistence, increaseth the matter of native heat, and therefore turneth the matter cast out of the vessels into *pus* and *sanies*. It is of nature hot and moist, and proportionable to the native heat of the part to which it is applied, and of an emplasticke consistence, that so it may hinder the native heat from being exhaled; in which respect it differeth from emollients and malasticks, of which wee shall speake hereafter. There bee two kinds of suppuratives, for some doe it of themselves, and by their proper qualitie; others by accident. Those things which by their owne strength do bring to suppuration, are either simples or compounds.

What a suppurative medicine is.

Differences of suppuratives.

Simples are *radix liliorum, capa, allium, malvarum omnium folia & semina, buglossum, acanthus, senecio, viola, parietaria, crocus, caules, ficus, passula mandata*, with a decoction of these things, *farina tritici, farina volatilis, farina hordei excorticati, lolii, seminis lini & fenugraci, galbanum, ammoniacum, styrax pinguis, ladanum, viscum aucupatorum, thus, pix, cera, resina, colla, adeps suillus, vitulinus, vaccinus, caprinus, butyrum, vitellus ovi, asipus humida, sterus suillum, columbinum, caprinum, pueri*.

Compounds are *oleum liliorum, lumbricorum, de croco, unguent. basilicum, emplast. diachylon commune, magnum, de mucilagibus*.

Those things doe suppurate by accident which worke it onely by the meanes of an emplasticke consistence: for so often times astringents, because they are of earthy and thicke parts, are found to suppurate; such are *unguentum de bolo nutritum*, and such like. Such also are those which by their coldnesse keep the heat in, and shut the pores. Hence is it that the qualities of sorrell are commended to generate *pus*: for whilest it keepeth the heat within, it encreaseth his effects, to the thickening of the suppurable matter, and the overcoming other rebellious qualities. We use things ripening in great inflammations, whose growth we cannot hinder with repellers, or increase with resolvers or discussers.

Suppuratives by accident.

CHAP. XIII.

Of mollifying things.

That is defined to bee a mollifying medicine, which by a stronger heat than that which is proper to suppuratives, without any manifest quality of drying or moistning, again malaxeth or softeneth hardned bodies: wherefore this differs from that which suppurates, because that may bee hot in the first or second degree, according to the severall temper of the body, or part to which it is applied, working rather by the quantity of heat than the quality: contrariwise, that which mollifieth being endued with a greater heat, rather worketh by the quality of the heat, being otherwise in drynesse and moisture temperate.

Gal. cap. 7. lib. 5. simpl.

How suppuratives and emollients differ.

Although as many things agree together in some respects, though of a divers nature; so many emollients are such as are hot in the first degree; and dry in the second

and

and third, that so they may the better disperse and diffuse that which is congealed, by taking away a little of the humidity, which is contained within the part affected; but not by exhausting it wholly by the violence of heate or drinckle: for hereon would follow a greater hardnesse.

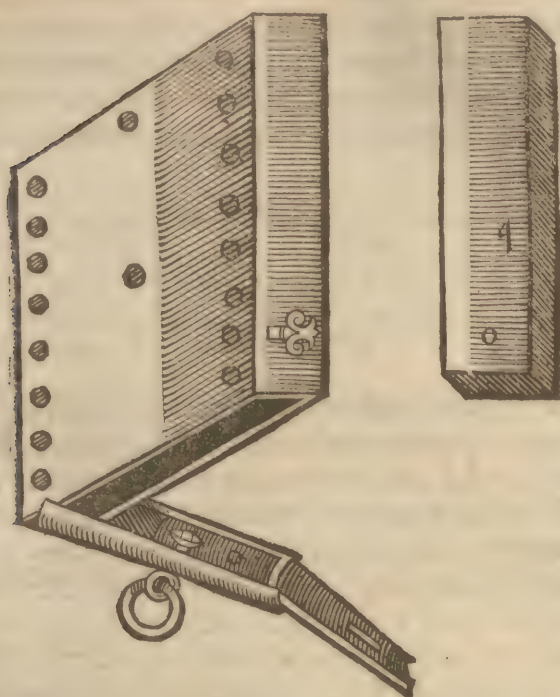
The differen-
ces of emolli-
ents.

Things mollifying, are either simple or compound; and these againe strong or weake. The weake are, *Radix liliorum alborum, cucumeris agrestis, althæa, folia malva, bismalva, liliorum, anethi summitates, viola, branca ursina, semen malva, bismalva, lini, fœnugraci, carici pingues, passula mundata, pedum, capitum, intestinorum vervecinorum decoctum, adeps ex junioribus & castratis, domesticis, fœminis animalibus, adeps suillus, vitulinus, hædinus, caprinus, bubulus, vulpinus, gallinaceus, asserinus, anatinus, olorinus, efficaces.* The weaker are things more gentle, as, *Butyrum, lana succida, cera pinguis, vitellus ovi, medulla ex ossibus, cervina, ovilla, caprina.* The compound are oyle, wherein are boiled mollifying herbes, as, *Oleum liliorum, chamamelinum, amygdalarum dulcium.* Stronger emollients are, *Acetum, adeps taurinus, ursinus, cervinus, leoninus, pardalinus, apri, equi serum, pinea, picea, abietina, terebenthina, ammoniacum, bdellium, styrax, galbanum, ladanum, propolis, opopanax, ung. de althæa, emp. diachylon commune & magnum, de mucilaginis, ceroneum, oxycroceum, Joannis de vigo.*

Their use.

We use emollients in scirrhus tumours of the muscles, or in the lips of ulcers, in any of the limbes, belly, glandules, bowels, by reason of a grosse, cold, and viscous matter, cyther flegmaticke, or melancholicke. Yet those tumours which come of melancholy, commonly turne to cancers, which are exasperated by mollifying things. On the contrary, such as proceed from a flegmaticke matter, are brought to an equality of consistence, by the use of emollients. Furthermore, there are three things observable in the use of emollients: the first is, duely to consider how much the affected part differs from his proper and naturall temper and proportion, that so we may apply an equivalent remedy. The second is, that wee distinguish the natures of the parts. The third is, that we artificially gather after what maner this mollifying must be performed, that is, whether we should mingle with the emollients, deterfive or discussing medicines. For there are many desperate scirrhus tumours, that is, such as cannot be overcome by any emollient medicine, as those which are growne so hard, that they have lost their sense; and thereupon are become smooth and without haire. Here you must observe, that the part sometimes becomes cold in so great an excessse, that the native heate plainly appears to languish, so that it cannot actuate any medicine. That this languishing heate may be resuscitated, an iron stove shall be set neere to the part, wherein a good thicke peece of iron heated red hot shall be inclosed, for so the stove will keep hot a long time.

Things obser-
vable in the use
of emollients.

The figure of an iron stove.

A. The casse of the stove.
 B. The iron Bat to be heated.
 C. The lidde to shut the stove.

CHAP. XIV.

Of Deterfives, or Mundificatives.

A Deterfive is defined to be that which doth deterge or cleanse an ulcer, and purge forth a double kinde of excrement; of the which one is thicker, which is commonly called *sordes*, which is drawne forth from the bottome of the ulcer, by the edificacious quality of the medicine, the other is more thin and watery, which the Greekes call *Ichor*, the Latines *Sanies*, which is taken away by the drinesse of the medicine; and therefore *Hippocrates* hath well advised, that every ulcer must be cleansed and dried.

Of Deterfives, some are simple, some compound, some stronger, some weaker. Deterfives.
 The simple are eyther bitter, sweet, or sowe: the bitter are *Gentiana*, *Aristolochia*, *iris*, *enula*, *scilla*, *serpentaria*, *centaurinum minus*, *absinthium*, *marrubium*, *perforata*, *abrotonon*, *apium*, *chelidonium*, *ruta*, *hyssopus*, *scabiosa*, *arthemisia*, *eupatorium*, *aloë*, *fumus terra*, *hadera terrestris*, a *lixivium* made with the ashes of these things, *lupini*, *robus*, *amygdala amara*, *faba*, *terebinthina*, *myrrha*, *mastiche*, *sagapenum*, *galbanum*, *ammoniacum*, the galls of Beasts, *stercus caprinum*, *urina bene cocta*, *squamma aris*, *asustum*, *arugo*, *scoria aris*, *antimonium*, *calx*, *chalcitis*, *misy*, *sory*, *alumen*. The sweet are *Viola*, *rosa*, *mellilotum*, *ficus pingues*, *dactyli*, *uva passa*, *glycyrrhiza*, *aqua hordei*, *aqua mulsa*, *vinum dulce*, *mel*, *saccharum*, *serum lactis*, *manna*, *thus*. The sharpe are all kinde of sowe things, *Capreoli vitium*, *acetum*, and other acide things. The compound are *Syrupus de absinthio*, *de fumaria*, *de marrubio*, *de eupatorio*, *de arthemisia*, *acetosus*, *lixivium*, *oleum de vitellis ovorum*, *de terebinthina*, *de tartaro*, *unguentum mundificativum de apio*, *apostolorum*, *pulvis mercurialis*. We use such things as deterge, that the superfluous matter being taken away, nature may the more conveniently regenerate flesh to fill up the cavity: But in the use of them, consideration is first to bee had of the whole body, whether it be healthy, plethoricke, or ill disposed, there is consideration to be had of the part, which is moyster and drier, endued with a more exquisite

Their use;

or duller sense. But oftentimes accidents befall ulcers besides nature, as a *callus*, a defluxion of a hot or otherwise maligne humour, and the like symptomes. Lastly, consideration is to be had, whether it be a new or inveterate ulcer, for from hence, according to the indication, remedies are appointed different in quantity and quality: so that oftentimes wee are constrained to appoint the bitter remedy in stead of the sweeter. Neither truly with a painfull and dry ulcer doth any other than a liquid deterfiv agree: neither to the moyst any other than that of a dry consistence, as Powders.

CHAP. XV.

Of Sarcoticks.



No medicine
truly sarcotick.

That medicine is sayd to be sarcotick, which by its drinesse helps nature to regenerate flesh in an ulcer hollow, & diligently cleansed from all excrements. But this is properly done by blood indifferent in quality and quantity. Wherefore, if we must speak according to the truth of the thing, there is no medicine which can properly and truly be called sarcoticke: For those which vulgarly goe under that name, are only accidentally such; as those which without biting and erosion do dry up and deterge the excrements of an ulcer, which hinder the endeavour of nature in generating of flesh. For as by the law of nature, from that nourishment which flowes to the nourishing of the part, there is a remaine, or a certaine thin excrement, flowing from some other place, called by the Greekes *Ichor*, and by the Latines *Sanies*: Thus by the corruption of the part there concretes another grosser excrement, termed *Rypus* by the Greekes, and *Sordes* by the Latines. That makes the ulcer more moyst, this more filthy. Hence it is, that every wound which requires restitution of the lost substance, must be cured with two sorts of medicines, the one to dry up and waste the superfluous humidity thereof, the other to fetch off the filth: and by how much the wound is the deeper, by so much it requires more liquid medicines, that so they may the more easily enter into every part thereof.

But diversity of things shall be appointed according to the various temper of the part. For if the affected part shall be moyst by nature, such things shall be chosen as shall be lesse dry: if on the contrary the part be dry, then such things shall be used as be more dry; but many sorts of medicines shall be associated with the sarcoticks, according to the manifold complication of the affects possessing the ulcer. Therefore nature only is to be accounted the workmaster, and the efficient cause in the regenerating of flesh, and laudable blood the materiall cause, and the medicine the helping or assisting cause, or rather the cause without which it cannot be: as, that by cleansing and moderately drying without any vehement heat, takes away all hindrances of incarnation and orders, and fits the blood to receive the forme of flesh. This kinde of medicine, according to *Galen*, ought to be dry only in the first degree, lest by too much drinesse, it might drink up the blood and matter of the future flesh, which notwithstanding is to be understood of sarcoticks, which are to be applied to a delicate and temperate body. For if the ulcer be more moyst, or the body more hard than is fit, we may ascend to such things as are dry, even in the third degree. And hence it is, that such drying medicines may first be called deterfives, and then presently sarcoticks. A sarcoticke medicine is cyther simple or compound, stronger or weaker. Simple sarcoticke medicines are, *Aristolochia utraque*, *iris*, *acorus*, *dracunculus*, *asarum*, *symphyti omnia genera*, *betonica*, *sanicula*, *millefolium*, *lingua canis*, *verbena*, *scabiosa*, *pinpinella*, *hypericon*, *scordium*, *plantago*, *rubia major & minor*, *eorumq; succi*. *Terebinthina lota & non lota*, *resinapini*, *gummi arabicum*, *sarcocella*, *masliche*, *colophonia*, *manna thuris*, *cortex ejusdem*, *aloë*, *olibanum*, *myrrha*, *mel*, *vinum*, *sanguis draconis*, *lythargyros auri*, *spodium*, *pompholix*, *tutia*, *plumbumustum lotum*, *scoria ferri*. The compound sarcoticks are, *Oleum hypericonis*, *ol. ovorum*, *mastichinum*, & cetera olea, que balsami nomine appellantur, *unguentum aureum*, *emp. de betonica*, &c.

Simple Sarcoticks.

Compound Sarcoticks.

gonis, de janua, Emp. gratia Dei, Emp. nigrum. We use not sarcoticks before that the ulcer be cleansed and freed from paine, defluxion, inflammation, hardnesse, and distemper. In using these things we consider the temper of the body, and the affected part: For oftentimes a part otherwise lesse dry by nature, requires a more powerfull drying medicine, and stronger sarcotick, than another part which is more dry, and this for some other reason, which ought to come into our consideration: For example, the glans would be more dried than the prepuce, although it be of a temper lesse dry, because it is the passage of the urine. Wherefore wee must diligently observe the condition of the affected parts, and thence taking indication, make choice of more strong sarcoticks. For both that which is too little, and that which is too much sarcoticke, makes a sordid ulcer: the first, because it dries not sufficiently, the latter, for that by its acrimony it causeth defluxion. Therefore diligent care must be used in the examination hereof.

CHAP. XVI.

Of Epuloticks, or skinning medicines.

AN Epuloticke medicine is that which covereth the part with skinn: it is said to bee such as by drinesse and astringion without biting desiccates, bindes, and condensates the flesh into a certain callous substance, like to the skinn, which we commonly call a cicatrize or scarre: yet this, as the generating of flesh, is the worke of nature. A medicine therefore is said to be Epuloticke, for that it assists nature in substituting and generating a scarre, in stead of the

true skinn, whilest it consumes the superfluous humidities, condensates, incrassates, and binds the next adjacent flesh; therefore it ought to dry more powerfully than a sarcoticke. Epuloticke medicines are of three kinds: the first is the true epulotick, which only dries and binds. The second is an acride and biting epuloticke, which, for that it wastes the proud flesh, is called so; and this must bee sparingly used, and that only to hard and rusticke bodies. The third is that which onely dries without astringion. The things whereof they consist are these: *Aristolochia utraque, gentiana, iris, centaurium majus, pentaphyllum, symphitum majus, chamædrys, betonica, cauda equina, eupatorium, verbenaca, plantaginis & symphyti folia, galla, baccæ myrti, glandes & earum calices, balaustia, cupressi nuces, malicorium, cortex quercus, cortex tamaricis, cortex ligni aloës, acacia, colophonia, sarcocolla, sanguis draconis, ladanum, lithargyros auri, argenti, cerusa, plumbum ustum, alumen ustum, tithia, squamma aris & ferri, & eorum scoria, arugo, flos aris, as ustum & lotum, sulphur vivum, chrysocolia, corali, bolus armenus, terra sigillata, cineres buccinarum, ostreorum, silicis, ossa usta & siccata, caries lignorum, ung. diapompholygos, ung. alb. & basis, desiccativum rubrum, emp. de cerusa, de betonica, diacalcitheos, emp. nigrum.*

Three sorts of
Epuloticks,

We use Epuloticks when as the ulcer is almost filled up, and equall to the adjacent skinn. In the use of these we must also have respect to the tenderesse and hardnesse of the body; for such things as are corrosives to tender and delicate bodies, are epuloticke to hard and rusticke bodies. Also wee must have regard, whether the body be plethoricke or replete with ill humours, for such do not easily admit cicatrization. Also it is most worthy of your observation, to marke whether the ulcer that is to be cicatrized, be fed or nourished by the present defect of any part, as the liver, spleene, lungs, or a *varix* lying about it. For it cannot be cicatrized before these impediments (if any such be) be taken away. Lastly, the callous lips of an ulcer, unlesse they be scarified or softened, hinder cicatrization. Therefore all such defaults must be taken away, and then such an epuloticke applyed, as may not by the too much drinesse leave the scarre too hollow, or the too little, leave it too high.

Their use.

CHAP. XVII.

Of Agglutinatives.



Glutinating or agglutinative medicine is of a middle nature, between the sarcoticke and epuloticke, more strong than the former, and weaker than the latter, for it is dry to the second degree. It by the drying and astringive faculty, voide of all deterfion, conjoynes parts that are distant, or rather lends helping hands to nature the principall agent in this work. Glutinatives, whether they be strongly or weakly such, doe agglutinate either by their proper

Agglutinative
medicines.

or accidentall nature: Of this sort are *Plantaginis omnes species, consolida utraque, buglossa, millefolium, verbenā, pimpinella, pilosella, cauda equina, sempervivum, telephium, sanicula, atractilis, folia quercus & dracunculi, salix, ebulus, sambucus, pentaphyllum, veronica, cortex pini, ulmi, palma quercus, Aqua vitis, aq. è folliculis ulmi, succus calamintha, vinum austerum, terebinthina, myrrha, sanguis draconis, bolus armenus, terra sigillata, omnia denique acerba.*

Glutinatives
by accident.

Glutinatives by accident are those that hinder de fluxion, and binde the part, as Sutures, Bandages, rest, rowlers, and the like. We use glutinatives in greene, and as yet bloody wounds, whence the Greekes call a glutinative medicine *Enema*, although sometimes they are used to inveterate, maligne, fistulous and sinuous ulcers; for they hinder the de fluxion from coming to the lips of ulcers. You must consider, when as you intend to apply them, whether the skinne be whole or no: For ulcers knit together, or heale more difficultly, if the skinne be rubbed off, or cut, or otherwise lost. Neither ought you to be unmindfull of the fore-mentioned cautions and indications drawne from the sexe, the tenderneffe or hardneffe of the affected body, the continuance and magnitude of the ulcer: for hence indication must be taken, what the quantity and quality of the medicine ought to be.

CHAP. XVIII.

Of Pyrotickes, or causticke Medicines.



That medicine is said to be Pyroticke or Causticke, which by its acrimony and biting, commonly consisting in an earthy consistence, either superficially corrodes, or more deeply eates and putrefies, or lastly, burnes and consumes the skin and flesh, so that it even pierces into callous and hard

Three degrees
of Causticks.

bodies. Therefore there are three degrees of Pyrotickes; for some are termed cathæreticke or corroding, for that they waste the proud flesh of an ulcerated or any other part, and these are judged the weaker sort of the Pyrotickes. Other some are termed Septicke or putrefying, as those which destroy and dissolve the tender and new sprung up flesh, and raise blisters in the skinne, and these are more powerfull than the cathæretickes. Lastly, there are other some termed most powerfull Escharotickes, which by their fiery and terrestriall quality cause eschars or crusts; whereupon they are also termed *Ruptoria*, & potentiall Cauteries: Now all these differences are taken from that they are more or lesse powerfull. For it oft-times happens, that according to the different temper and consistence of the parts, according to the longer or shorter stay, a Cathæreticke may penetrate as farre as a Septicke, and on the contrary, an Escharoticke may enter no farther than a Septicke.

Cathæreticks.

These are judged Cathæretickes, *Spongia usta, alumen ustum & non ustum, vitriolum ustum, calx mediocriter lota, arugo, chalcanthum, squamma aris, oleum de vitriolo, trochisci andronis, phasionis, asphodelorum, ung. Ægyptiacum, apostolorum, pulvis mercurii, arsenicum sublimatum.*

Septicks and
Vesicatories.

Septickes and Vesicatories are, *Radix scilla, bryonia, sigill. beatæ Mariæ, buglossa, radix ranunculi, panis porcini, apium, risus, lac tisbymallorum, lac fici, euphorbium, anacardus,*

cardus, sinapi, cantharides, arsenicum sublimatum: For all these weaken the native temper and consistence of the part, and draw thereunto humours plainly contrary to nature.

Escharotickes or Caustickes are, *Calx viva, fax vini cremata, & precipud aceti*, Escharoticks.
ignis, whereto are referred all Cauteries, as well actuall as potentiall, whereof wee shall treat hereafter.

Wee use Cathæretickes in tender bodies and diseases not very contumacious; Their use.
therefore by how much they are lesse acride & painfull, by so much oft-times they penetrate the deeper, for that they are lesse troublesome by delay; but we use Septickes, and sometimes Escharotickes in ulcers that are callous, putride, and of exhausted humidity, but principally in cancers, carbuncles, and excessive hæmorrhagies. When as we make use of these, the patient must have a convenient dyet appointed, must abstaine from wine: lastly, they must not be used but with great discretion; for otherwise they may cause feavers, great inflammations, intolerable paines, swounings, gangrenes, and sphacels. Cauteries heedfully used, strengthen and dry the part, amend an untameable distemper, dull the force of poyson, bridle putrefaction and mortification, and bring sundry other benefits.

CHAP. XIX.

Of Anodynes, or such as mitigate or assuage paine.

BEfore we treat of Anodyne medicines, we thinke it fit to speake of the nature of paine. Now paine is a sorrowfull and troublesome sense, What paine caused by some sodaine distemper, or solution of continuity. There are three things necessary to cause pain; The efficient cause, that is, a sodain departure from a naturall temper or union: the sensibleness of the body receiving the dolorifick cause: lastly, the apprehension of this induced change, caused either by distemper or union; for otherwise with how exquisite soever sense the body receiving the cause is indued with, unlesse it apprehend and marke it, there is no paine present. Hence is that Aphorisme of Hippocrates, *Quicumq; parte aliqua corporis dolentes dolorem omnino non sentiunt, his mens agrotat*, that is, Whosoever pained in any part of their bodies doe wholly feele no paine, their understanding is ill affected and depraved. Heat, cold, moisture, and driness, induce a sodain change of temper; and heate and cold cause sharpe paine, driness moderate, but moisture scarce any at all: for moisture causeth not paine so much by its quality, as it doth by the quantity. Both the fore-mentioned qualities, especially associated with matter, as also certaine externall causes too violently assailing, such as these that may cause contusion, cut, pricke, or too much extend. Wherefore paine is a symptome of the touch, accompanying almost all diseases; therefore oft-times leaving these, they turn the councill of the Physitian to mitigate them, w^{ch} is performed either by mitigating the efficient causes of paine, or dulling the sense of the part. Hereupon they make three differences of Anodynes: For some serve to cure the disease, other some to mitigate it, other some stupefie, and are narcotick. We terme such curative of the diseases, which resist, and are contrary to the causes of diseases. Thus paine, caused by a hot distemper, is taken away by oyle of Roses, Oxycrate, and other such like things, which amend and take away the cause of paine, to wit, the excessse of heate. Paine caused by a cold distemper, is amended by *Oleum Laurinum, Nardinum, de Castoreo*. Paine occasioned by too much driness, is helped by *Hydracum*, a bath of fresh and warme water. Lastly, by this word Anodyne, taken in the largest sense, we understand all purging medicines, Phlebotomy, Scarification, Cauteries, Cuppings, Glysters, and other such like things as evacuate any store of the dolorifick matter. But such as are properly termed Anodynes, are of two sorts: for some are What properly termed Anodynes are, temperate, others hot and moist in the first degree, and consequently, neere to those that are temperate: these preserve the native heate in the proper integrity, thus they amend all distemperatures, of this kinde are accounted Sallade oyle, oyle of sweete

almonds, the yolks of eggs, and a few other such like things, these strengthen the native heat, that thus encreased in substance, it may with the more facility overcome the cause of paine: besides also, they rarifie, attenuate, digest, and consequently evacuate both grosse and viscid humours, as also cloudy flatulencies hindered from passing forth: such are *flores chamameli, meliloti, crocus, oleum chamamelinum, anethinum, oleum lini, oleum ex semine althææ, lumbricorum, ovorum, ex tritico, butyrum, lana succida, suillus adeps, vitulinus, gallinaceus, anserinus, humanus, ex anguilla, cunicula, & aliis. Lac muliebre, & vaccinum, mucago seminis lini, fœnugraci, alihææ, malva, vel ejusmodi seminum decoctum*: as also *Decoctum liliorum, violaria, capitis, pedum, & intestinorum arietis & hædi*.

Narcoticks improperly termed anodines.

Narcoticks, or stupefying medicines, improperly termed Anodines, are cold in the fourth degree, therefore by their excessse of cold, they intercept or hinder the passage of the animall spirit to the part, whence it is that they take away sense: of this sort are *hyoscyamus, cicutæ, solanum manicum, mandragora, papaver, opium, arctifima vincula*.

The use of them.

You may make use of the first sort of Anodynes in all diseases, which are cured by the opposition of their contraries: but of the second, to expugne paines that are not very contumacious, that by their application wee may resist defluxion, inflammation, the feaver, and other symptomes. But whereas the bitterness of paine is so excessive great that it will not stoop to other medicines, then at the length must wee come to the third sort of anodynes. Yet oft times the bitterness of paine is so great that very narcoticks must be applied in the first place, if we would have the part and the whole man to be in safety. Yet the too frequent use of them, especially alone without the addition of saffron, myrrh, *castoreum*, or some such like thing, useth to be very dangerous: for they extinguish the native heat, and cause mortification, manifested by the blackenesse of the part. But intolerable paines, to wit, such as are occasioned by the excessse of inflammation and gangrenes, may bee sooner mitigated by opening a veine, purging and scarifying the part affected, than either by properly termed anodines or narcoticks, to wit, that paine may bee the remedy of paine. By purgers we here understand not onely such, as taken by the mouth, produce that effect, but also such as outwardly applied performe the same, as those whereof *Aetius* makes mention. As,

Tetrab. 1. sem. 3. cap. 35.

Purgatives to bee externally applied.

Rx. *pulpa seu medul. colocynth. semin. eruc. rut. sylvest. elaterii, gr. cindii, lathyrid. expurgatar. galban. nitri, cera, singulorum, ʒ iiii. opopan. ʒ ii. terebinth. ʒ vi. terendate-rito, & taurino felle paulatim irrigato, donec apte imbibantur*. Then apply it about the navill even to the share, for thus it will purge by stoole; if on the contrary you apply it to the bottome of the stomacke, it will cause vomit. Another; Rx. *elaterii, ʒ iii. colocynth. scammon. squamma aris, radic. cucumer. agrest. lathyrid. an. ʒ i. aut pro lathyrid. tithymal. succum terito & cribrato, ac cum oleo plurimum salis habente subigito; magnam inde pilam e lana confertam hoc medicamento illitam, umbilico aut lumbis applicato*. Or, Rx. *fellis taurin. ʒ i. gr. cindii virid. ʒ iv. succi lupinor. virid. ʒ ii. euphorb. ʒ i. pulp. colocynth. tantundem adip. vulpin. recent. ʒ ii. adip. viper. ʒ ii. stercor. muris, ʒ iv. succi pæon. castor. singulor. ʒ iv. ol. ligustrin. ʒ vi. ol. antiq. ʒ i. fiat unguentum vel oleum*. It purgeth without trouble, and besides the other commodities it also is good against distraction or madnesse. Two spoonefulls is the greatest quantity to be used at one time, for in some one is sufficient: anoint with it the navill and thereabouts, and a just purgation will ensue thereupon, which if it shall flye out beyond your expectation, you may foment the belly with a sponge moistened in warm wine and pressed forth againe, and it will be presently stayed. Moreover *Fernelius lib. 7. methodi*, makes mention of a laxative ointment.

The composition of a purging oile and ointment.

CHAP. XX.

Of the composition and use of Medicines.

Hitherto wee have spoken of the faculties of simple medicines, now wee thinke good to say something of the compounding of them: for so by the Archited are had & known every thing apart, and then he settles the workemen to the building, the conceived forme of which hath beene in his minde ever since hee did enterprise it. Therefore the composition of divers medicaments with their qualities and effects, is a mingling appointed by the art of the Physitian. Hence therefore *rheum*, *aloe*, *rosa*, *absinthium*, although they have divers substances and faculties, yet are notwithstanding called simple medicines, because they have that variety from nature, not from art. But we many times call simple such things as are compounded by art, as *oxym.* *simpl.* *oxysacch.* *simplex*, as compared to greater compositions. And therefore often times wee use compound medicines, because alwaies the simple medicine alone, hath not strength enough to oppugne the disease. For many times the sicke labour with manifold, and not simple affects, from which there being taken a various indication, we gather contrary simple medicines, to apply to every affect, in one composition. But often times the nature of the part of the patient, or of the body affected, requireth another kind of medicament which may bee proper for the removing that disease; wherefore it is so made to oppugne the disease and not offend the body: and we mingle many other together, whose effects may temper one another. Moreover, the composition of medicines was necessary, that because those things which have not a good taste, colour, or sinell, by art or composition might be made more gratefull. Compound medicines of which we intend to speak, are Glysters, Suppositories, *Noduli*, Pessaries, Oiles, Liniments, Ointments, Emplasters, Cerats, Pultisses, Cataplasmes, Fomentations, Embrocations, Epithemaes, Vesicatories, Cauteries, *Collyria*, *Errhina*, Sneefing powders, Masticatories, Gargarismes, Dentitrics, Bags, Fumigations, Semicupiums, Baths. But first it is expedient that I say something of weights and measures, with their notes, by which medicines commonly are measured and noted by Physitians.

Gal. 2. simp. A. de
sanit. tuend.

The necessity
of compound
medicines.

CHAP. XXI.

Of weights and measures, and the notes of both of them.

Every weight ariseth from a beginning and foundation, as it were; for as our bodies doe arise of the foure first simple bodies or elements, into which they are often resolved: so all weights do arise from the graine, which is as it were the beginning and end of the rest. Now hereby is understood a barly corne or graine, and that such as is neither too dry, or overgrowne with mouldinesse, or rancide, but well conditioned, and of an indifferent bignesse.

A graine the
beginning of
all weight.

What is meant
by a graine.

Ten graines of these make an *Obolus*; two *Oboli*, or twenty graines make a scruple, three scruples, or sixty graines make a dramme, eight drammes make one ounce, twelve ounces make one pound medicinall, which is for the most part the greatest waight used by Physitians, and which they seldome exceed; and it is resolved into ounces, drammes, scruples, *oboli* and graines, which is the least weight. To expresse these weights we use certaine notes, the pound is expressed by this note, *℔*. the ounce by this, *℥*. the dramme thus, *℥*. the scruple thus, *℥*. the *obolus* with the beginning letter thus, *obol.* the graine with his beginning letter thus, *g*. But sometimes we measure the quantity of medicines by measures and not alwaies by weights; and therefore we expresse a handfull by this note, *m*. a pugill thus, *p*. number thus, *n*. and the halfe part of every weight and measure is expressed by this note, *℥*. put after every note of the aforesaid weights and measures of the same sort, as the halfe pound,

Obolus:
A scruple.
A dramme.
An ounce.
A pound.

℥. the halfe ounce, ʒ. and so of the rest. Moreover, in describing the same medicament wee use the notes sometimes of weights, sometimes of measures; and therefore it is to bee noted that herbes, greene or dry, are signed with these notes, m. p. but those which are dry and be brought to powder, with these notes, ʒ. ʒ. p.

| | | |
|----------|-------------------|-----------------|
| Roots, | } by these notes, | ʒ. ʒ. p. m. |
| Barks, | | ʒ. ʒ. |
| Seeds, | | ʒ. ʒ. |
| Fruits, | | an. p. ʒ. ʒ. ʒ. |
| Flowers, | | p. m. ʒ. ʒ. |
| Pulses, | | p. ʒ. ʒ. |

All other medicaments either dry or liquid, are described with these notes, ℥. ʒ. ʒ. ʒ. obol. g.

Having expounded these things, let us come to the description of compound medicines, beginning with glysters first, as the remedy which is most common and familiar, and almost chiefly necessary of all others.

CHAP. XXII.

Of Glysters.

What a glyster is.



Glyster is an injection prepared first and properly for the grosse intestines and fundament; for sometimes glysters are used & made for the stomach, spleen, reines, bladder, wombe, mesentery, and also for the head, from whence often times by sharpe glysters, the hurtfull matter is brought downewards, as we see in Apoplexies. Therefore there is no part of the body which receives not some benefit by glysters, but more or lesse according to the vicinity they have with the belly, and the strength of the glyster: for there are divers sorts of glysters, some emollients, other evacuating, some anodines, some astringents, some cleansing, some sarcoticke, and epuloticke, and some may bee said to nourish. They are all made of the parts of plants or beasts, with compound medicines either solutive or altering, and others according to the advise of the Physitian. The parts of plants which are used to this purpose, are roots, seedes, leaves, flowers, fruits, shotts, juices, mucilages. Parts of beasts are yelkes of egges and whites, honey, chickens, capons, old cockes well beaten, heads and feet of sheepe, the intestines, whey, milke, sewer, axungia, and such like in decoctions, wherein wee mingle and dissolve simple and compound medicines. Wee sometimes use without any other medicament, to make a glyster with oyle alone, as oile of nuts for the Cholicke, of whey alone, the decoction of the head and feet of the sheepe alone, and of the decoction of Cicers and barley do we prepare glysters.

Differences of glysters.

The materials of glysters.

Their quantity.

The quantity of a glyster is sometimes lesse according to the divers disposition of men and their diseases: for weake children the quantity is lesse: for women with child, and in the cholicke, dysentery, lyentery, or when much hardened excrement is within. But when wee would abundantly move the excrement, and there is nothing that may hinder, the dose of a glyster for the most part is halfe a pound, one pound, or three quarters of a pound. The glyster must bee injected warme or hot, more or lesse, according to the nature or condition of the sicke; for being cold it offends the intestines, and the neighbouring nervous parts, which are cold of themselves. It must bee given by degrees, for being injected sodainely, the winde which is usually in the guts will beat it backe againe, whence comes intolerable pain. But this will bee more cleere by that wee shall teach concerning the differences of glysters, whereof there shall be sufficient examples.

An emollient glyster.

R. *malv. violar. bismalv. acanth. an. m. i. radic. alb. lilior. an. ʒ. i. passul. ficuum ping. ʒ. ʒ. fiat decoctio ad ℥. i. in qua dissolve cass. butyr. recent. an. ʒ. i. ol. viol. ʒ. iii. fiat clyster.*

Glysters

Glysters, that doe evacuate, are prepared by the counsell of the Physitian, and of divers Simples, being boyled for severall purposes. Therefore if the humours bee cold which are to bee evacuated, the Glyster shall be after this manner: *Rx. Salvia, origani, abrotoni, chamam. melilot. an. m. β. seminum anisi, fœnic. cumini, an. ʒiii. semin. cartbar. ʒii. Make a decoction of them, wherein dissolve Diaphon. Hier. Simpl. an. ʒβ. ol. aneth. chamam. an. ʒi. β. Mellis Antho. sach. rub. an. ʒi. fiat Clyster.* A Glyster to evacuate a cold phlegmaticke humour.

To evacuate Cholericke matter, prepare a Glyster after this manner.

Rx. quat. remollient. pariet. Cichor. endi. an. m. β. Semin. quat. frigid. Major. an. ʒiii. hordei integri p.i. Make a decoction of them, and dissolve in it Cass. ʒi. Ol. viol. mellis viol. an. ʒii. fiat Clyster.

To evacuate melancholy, this Glyster following will be usefull.

Rx. Fumiter. Centaur. minoris, Mercurialis, an. m. i. Polyp. Qu. follicul. senna, an. ʒiii. seminis agni casti, Thymi, an. ʒii. Make a decoction, and dissolve therein, Confect. Hamech. ʒβ. Cass. recens extract. ʒiii. olei violati, lilior. an. ʒβ. Sach. rub. mellis viol. an. ʒi β. salis, ʒi. And those Glysters doe not only evacuate the humours that offend, but also correct the distemper of the bowels and inward parts. For the Glysters described against pituitous and melancholy matter, helpe the cold distemper; but that which is for choler, the hot distemper. Purging medicines, which are dissolved in the decoctions of Glysters, are very strong, as, Confect. Hamech. Benedicta, Diaprun. Solutivum, Diaphanicon, being used from ʒ. vi. to ʒi. at most: but the weaker and more gentle are Catholicon. Cassia, Hiera simplex, from ʒvi. to ʒii. at most.

An Anodyne Glyster is usually made without such things as purge or evacuate: as,

Rx. Flor. Chamam. melil. Aneth. an. p. i. rad. Bismal. ʒi. boyle them in Milke, and to the decoction adde Mucaginis seminis lini fœnugraci extracta in aqua Malva ʒii. sachari albi, olei anethi, chamameli, an. ʒi. vitellos ovorum duos, fiat Clyster. These Glysters should be kept longer in the body, that so they may more easily mitigate paine. An Anodyne Glyster.

The example of an astringent Glyster.

Rx. Equiseti, plantag. poligani. an. m. i. boyle them in lacte ustulato, to ʒxii. to the decoction strained adde Boli armeni, sanguinis draconis, an. ʒii. olei rosati, ʒii. album. ovorum duorum, fiat Clyster. We use these kinde of Glysters in Dysenteries, and in the immoderate fluxe of the Hemoroid veines, having first evacuated the usuall excrements. Glysters, which be sarcoticke, epuloticke, and cleansers of the greater guts, and fit for the curing of ulcers, are to be prepared of such medicines as are described before in their proper Chapters. An astringent Glysters.

Alimentary Glysters are made of the decoction of Chickens, Capons, Cocks, being boyled to a gelly, and strongly prest forth. They are also prepared of Marrow, gelly, which are not altogether so strong as those which are commonly taken by the mouth, because the faculty of concoction in the guts, is much weaker than that of the stomacke. Oftentimes also the matter of these kinde of Glysters are prepared in wine, where there is no paine of the head or feaver, but more frequently in the decoction of Barley, and in Milke, adding the yelkes of Egges, and some small quantity of white Sugar, lest by the cleansing faculty it move the guts to excretion. And therefore Sugar of Roses is thought better, which is conceived to bee somewhat binding. Here you may have examples of such Glysters. *Rx. Decoctionis Capi perfectè cocti lb. i. β. sachari albi, ʒβ. misce, fiat Clyster. Rx. Decocti Pulli & Galatina. an. lb. β. vini opt. ʒiv. fiat Clyster. Rx. Decocti hordei mundati, & in cremorem redacti lb. β. lactis boni lb. i. Vitellos ovorum duos, fiat Clyster. We use these kinde of Glysters to strengthen* Nourishing Glysters. Their use.

then children, old and weake men, and bodies which are in a Consumption. But in the use of these there are three things to be observed: First, that the saculent excrements be taken away, either by strength of nature, or by art, as by a suppository, or an emollient Glyster, lest the alimentary matter, being mingled with them, should so be infected and corrupted. The other is, that there be great quantity given, that so some may ascend to the upper guts. The third is, that the sicke sleep after the taking of it; for so it is more easily converted into nourishment, and the alimentary matter is better kept: for sleep hindereth evacuations. In Glysters of this kinde wee must beware of Salt, Honey, and Oyle; for the two first provoke excretion by their acrimony, and the last by his humidity doth relaxate and lubricate. They, who thinke no kinde of Glyster can nourish or sustaine the body, relye upon this reason: That it is necessary whatsoever nourisheth, should have a triple commutation or concoction in the body: first, in the stomacke; secondly, in the liver: thirdly, in all the members. But this opinion is repugnant to reason and experience: to reason, for that a certaine sense of such things as are defective, is implanted in all and every of the naturall parts of our body. Therefore seeing nutrition is a repletion of that which is empty, without doubt the empty and hungry parts will draw from any place that nourishment which is fit and convenient for them, and in defect thereof, whatsoever they meet with, which by any familiarity may assuage and satisfie their desire. But the alimentary Glysters, by us described, consist of things which agree very well with the nature of our bodies, and such as are boyled and ordered with much art, so to supply the chylication to bee performed in the stomacke. Therefore they may be drawne in by the meseraicke veines of the guts, which, according to *Galen*, have a certaine attractive faculty. And thence they may bee easily carried through the gate veine, liver, and so over the whole body. And experience teacheth, that many sick people, when they could take nothing by the mouth, have bin sustained many daies by the helpe of these kinde of Glysters. What is more to bee said? We have seen those who have taken a Suppository by the fundament, and vomited it at the mouth; by which it also appeareth, that something may flow without danger of the sicke from the guts into the stomacke.

Their Argument that deny Glysters to nourish. Confuted first by reason.

Secondly, by experience.

Commonly they give Glysters any houre of the day, without any respect of time, but it should not be done unlesse a great while after meales, otherwise the meate, being hindered from digestion, will be drawne out of the stomacke by the Glyster.

The common use of Glysters.

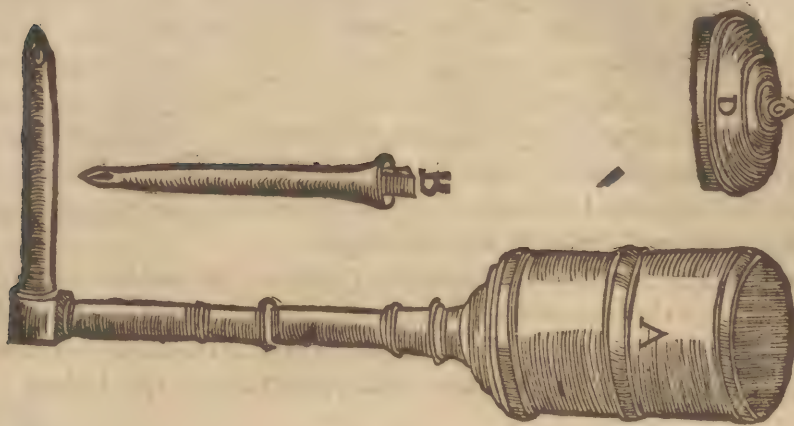
Glysters are used to helpe the weaker expulsive faculty of the guts, and by consequence also of the other parts, both that such as through want of age, and old people, and such as by reason of great imbecility by sicknesse cannot admit of a purging medicine, may by this meanes at least ease themselves of the trouble and burden of hurtfull humours. *Galen* hath attributed to *Storkes* the invention of Glysters, which with their bils, having drunke Sea water, which from saltnesse hath a purging quality, wash themselves by that part, whereby they use to bring away the excrements of their meates, and of the body. But a Glyster is fitly taken after this maner: whilst the Syringe is expressed, let the patient hold open his mouth; for by this means all the muscles of the *Abdomen*, which helpe by compression the excretion of the guts, are relaxed. Let him weare nothing that may gird in his belly, let him lye upon his right side, bending in a semicircular figure; and so the Glyster will the more easily passe to the upper guts, and (as it were) by an overflowing, wet and wash all the guts and excrements. It hapneth otherwise to those who lye upon their left side; for the Glyster being so injected, is conceived to abide, and (as it were) to stop in the *Intestinum rectum*, or *Colon*, because in this site these two Intestines are oppressed, and as it were shut up with the weight of the upper guts. A little while he may lye upon his backe after hee have received the Glyster, and presently after hee may turne himselfe on either side. And if there be paine in any part, so long as he is able he may incline to that side. Moreover, because there are many, who cannot by any reason bee perswaded to shew their buttockes to him that should administer the Glyster, a foolish shamefastnesse hindering them; therefore I thought good in this place to give the figure of an Instrument, with which one may give a Gly-

The sicke, having received the Glyster, must turne to the side grieved.

ster

ster to himselfe, by putting up the pipe into the fundament, lifting the buttockes a little up. The pipe is marked with this Letter A. The body of the Syrenge, whereinto the Glyster must be put, with this Letter B.

The figure of a Glyster pipe and Syrenge, by benefit whereof a man may give himselfe a Glyster.



CHAP. XXIII.

Of Suppositories, Nodules, and Pessaries.



Suppository is a certaine medicament, formed like unto a tent, or gobbet of paste, such as is commonly used to fat Fowle. It is put up into the fundament, that it might excite the sphincter muscle to send forth those excrements which are kept in the guts. Antiently it had the forme of an Acorne, whence it is called to this day *Glans*. The Suppositories we now usually make have the forme of a Pessary, that is, round and longish, in the forme of a waxe Candle. They are either weake, stronger, or sharpe; the weake are made of the stalkes or the rootes of Beets, of Lard, boiled Honey with Salt, or of Castle-sope. The stronger of purging powders, as, *Hiera* with Salt and Honey. The sharp with Scammony, *Euphorbium*, *Coloquintida*, and like things powdred, and with Honey, or the juices of sharpe herbes, or mingled with the gals of Beasts. It is commonly made thus: as, *Rx. Mellis ℥i. Salis aut pulveris alterius irritantis ℥i.* The difference.

Rx. Mellis cocti ℥i. pul. Colocynthidos ʒ℥. Salis gemma. ℥i. fiat Suppositorium. Wee use Suppositories, when the sicke by his infirmity is unwilling, or not able to beare or away with a Glyster, as in burning Feavers: or, when as one being injected, is slow, and resteth in the guts. And we use the sharper Suppositories in seporiferous affects of the head, that they might provoke the dull faculty of the guts to expulsion. As also, when the condition of the disease is such, that by the use of Glysters there is manifest hurt; as, in an *Enterocoele*, where the gut so swells, that over and above it be filled by the glyster infused, it would the more presse the *Peritoneum*, so that straightwaies by the relaxed or broken part it might easily be devolved into the Codde. The use.

Nodules have the same use with Suppositories, and are oftentimes substituted in stead of Glysters. They are made of gentle medicines, as the yelkes of Egges with a little Salt and Butter, or of Gall and Honey tyed up in a cloth in the forme of a Filbert, the string of it may hang forth, whereby the Nodule in the fundament may be drawne forth. This description may be an example of Nodules: *Rx. Vitellum unius ovi, cui adde salis modicum, fellis vervecis, mellis an. ʒ℥. butyri ℥iii. misce, fiant Noduli filo appensi.* The forme of a Nodule.

A Pessary is groffer than a Suppository, and is appointed for the wombe, being made with Cotton-wooll or Silke steeped in some medicament, and then put into the necke of the wombe. Pessaries.

A Pessary

Their use.

A pessary is used either to ulcers of the necke of the wombe, or for the procuring, or stopping of the *Menstrua*, or against fardie and hurtfull humours of the wombe causing hysterical passions, and therefore to be wasted away and evacuated. Therefore in the composition of pessaries are used gummes, juices, seeds of herbes, roots, and many other things, according to the advise of the Physitian; they are also made of a solide consistence, the bignesse of a finger, that they may enter into the necke of the wombe; these being tyed with a string, which must hang forth to plucke it out withall when occasion serves. This following may be an example of their description. ʒi. myrrh. aloes, an. ʒi. sabin. semin. nigel. arthemis. an. ʒii. radic. ellebor. nig. ʒi. croci, ʒi. cum succo mercurial. & melle fiat pessus; let it be tied to the thigh with a thread. Or this, R. mastich. thurii, an. ʒiii. alum. ros. rub. nuc. cupres. an. ʒii. ladan. hypoci. samach, myrtil. an. ʒiii. fiat pessi cum succo arnoglos. & cotoniorum. According to this example others may be made for to mollifie, to binde, to cleanse, to incarnate, to cicatrize and cover the ulcers of the womb: they are to be put up when the patient lieth in bed, and to be kept all night.

Pessaries are also made of medicinable powders, not onely mingled with some juice, but also with those powders alone being put into a little bagge of some thinne matter, being stuffed with a little cotton that it might be of a convenient stiffnesse, and this kinde of pessaries may be used profitably in the falling of the mother.

An example of one mentioned by Rondeletius in his booke of inward Medicines, is as followeth.

Against the suffocation of the Mother.

R. Benioini, styracis, caryoph. an. ʒi. gal. mosch. ʒss. moschi, gr. vi. fiat pulvis; this being made up with cotton may be put up into the body.

CHAP. XXIV.

Of Oyles.



Properly and commonly we call oyle that juice which is pressed forth of Olives; but the word is used more largely, for we call every juice of a fluxible, unctuous, and aery substance, Oyle. There are three differences of these oleaginous juices: The first is of those things which yeeld oyle by expresseion, as well fruits as seeds being bruised, that by beating the oily juice may be pressed forth; some are drawn without fire, as oyle of sweet and bitter almonds, oyle of nuts, of *palma Christi*. Others are made to runne by the helpe of fire, by which meanes is gotten oyle of baies, linseed oyle, rape oyle, oyle of hempe, and such like: The manner of drawing oyle from seeds is set downe by *Mesue* in his third booke.

The making oyles by infusion.

The second sort is of those oyles which are made by the infusion of simple medicines in oyle, wherein they leave their qualities: and this is done three severall waies, the first is by boyling of roots, leaves, tops of flowers, fruits, seeds, gummes, whole beastes, with wine, water, or some other juice, with common, or any other oyle, untill the wine, water, or juice bee consumed, which you may perceive to bee perfectly done, if you cast a droppe of the oyle into the fire, and it maketh no noise but burneth. It is to be remembred that sometimes the seeds or fruits are for a certaine time to be macerated before they are set to the fire; but it must bee boiled in a double vessell, lest the oyle partake of the fire.

After this manner is made *oleum costinum*, *rutaceum*, *de croco*, *cydoniorum*, *myrtillorum*, *mastichinum*, *de euphorbio*, *vulpinum*, *de scorpionibus*, and many others. The second is by a certaine time of maceration, some upon hot ashes, others in horse dung, that by that moderate heat the oyle might draw forth the effects of the infused medicines into it selfe. The third is by insolation, that is, when these or these flowers, being infused in oyle, are exposed to the sunne, that by the heat thereof the oyle may change

change, and draw into him selfe the faculty of the flowers which are infused: of this kinde are oile of roses, chamomile, dill, lillies, of water lillies, violets, and others, as you may see in *Mesue*.

The third kinde is properly that of the Chimiſts, and is done by resolution made after divers manners, and of this sort there are divers admirable qualities of divers oleaginous juices, whether they be made by the sunne or fire, or putrefaction, as we shall speake in his place hereafter. The manner of oiles by resolution.

Wee use oiles when wee would have the vertue of the medicament to pierce deepe, or the substance of the medicines mingled with the oile to bee soft and gentle. Moreover, when wee prepare oiles that should be of a cooling quality, the common oile of the unripe Olive is to be used: of that should the oile of roses be made.

Againe, when we would prepare oiles of heating qualities, such as are *Oleum philosophorum*, or of Files, sweet and ripe oile is to be chosen.

CHAP. XXV.

Of Liniments.



Liniment is an externall medicine of a meane consistence, What a liniment is. between an oile and an ointment, for it is thicker than an oile; for besides oile it is compounded with butter, axungia, and such like, which is the reason why a liniment is more efficacious in ripening and mitigating paine, than simple oile. The varieties of liniments is drawn from their effects, some coole; others heat, some humect, some ripen, others by composition are made for divers uses. The matter whereof they are usually made, is oile, axungia, sewer, butter, all those things which have an oily substance or consistence, as *styrax liquida*, turpentine, the mucilages of fenugreece, marsh-mallows, marrow, and other like. To these are sometimes added powders of rootes, seedes, flowers, rindes, metals, but sparingly, that the liniment may be of a liquid consistence:

An example of a liniment that is good to attenuate, heat, and digest, is this that followeth.

Re. ol. amygd. amar. lilior. an. ʒ i. axung. anat. gallin. an. ʒ ʒ. butyr. sal. expert. ʒ i. mucag. sem. alth. fænugr. extract. in aq. hyssop. an. ʒ ʒ. pulver. croci, ireos, an. ʒ i. fiat linimentum.

This may be an example of a liniment to humect and mollifie.

Re. ol. amygd. dulc. ʒ ii. axung. human. ʒ ʒ. mucag. femin. malv. extract. in aq. parietar. ʒ ʒ. fiat linimentum: you may adde a little saffron. There bee many others like these which may be made for divers affects. They are easily applied to every part of the body, because they are not so liquid as oiles: the reason is, they are more agreeable to any of the parts. If they be to enter into any crooked narrow passage, such as the eare, they must be more liquid, and have more oile: if they be to sticke on the part, they will admit of more axungia and sewer.

They are deceived who thinke that the difference betweene liniments and ointments is, that there is no waxe in liniments as there is in unguents; for there be some unguents which admit not any waxe to bee added, as *egyptiacum*, and all such as are used in gangrenes, and all sorts of putride ulcers; because to these kinds of diseases all fatty things, as oiles, fats, rosines, and waxe, are enemies. Therefore wee substitute in the place of them in *egyptiacum*, hony and verdigreace; for of these it hath his consistence, and his quality of cleansing.

CHAP. XXVI.

of Ointments.

Oyntments &
their differen-
ces.



Oyntments are of a more solid consistence than Liniments, and are therefore of more force. Their differences are partly taken from their effects; for some heate, others coole, some dry, and some humect, some cleanse, some corroborate, some waste dead flesh, and others cicatrize, partly from the variety of colours, partly from the first invertors, as, *Album rhafis*, *Desiccativum rubrum*: partly from the number of the simple medicaments whereof they bee made, as, *Tetrapharmacum*, *Tripharmacum*, or *Nutritum*: partly from that medicament which is principall in the composition, hence are they called, *Unguentum de Lythargyro*, *de Minio*, *Diapompholigos*, and such like. They are compounded of herbes, rootes, seedes, fruits, mettals, and parts of Beasts; the juices and other liquid things being consumed away by boyling, as we have said in the Chapter of compound Oyles. Herbes, and the parts of them, if they be dry, must be powdred, and also mettals; but being greene, they are boyled and strained forth, and the juice so pressed is wasted by boyling. Gums and Rosins some are powdred, others being put to some convenient liquor are dissolved by fire: So Waxe is dissolved in the Oyle. In the composition of unguents this proportion is usually observed, that for one ounce of powder, two ounces of Waxe, and eight of Oyle is added: notwithstanding for that Waxe serveth onely to the consistence of the oyntment, it is better to leave the quantity to the will of the Apothecary, but he may be more sparing in adding Waxe to the oyntments in the Summer than in Winter: for the heate of Summer, drying them, addeth to the consistence; by examples propounded, these common precepts will more plainly appeare.

Unguentum adstringens.

Rx. *Olei ros.* ℥iv. *pil. lepor. bol. armen. terra sigil. an.* ℥i. *bal. Gallar. an.* ℥β. *tritris terendis, & simul mixtis, addita cera quod sufficit, fiat unguentum.* Here wee must observe, that there bee three waies of making Oyntments: The first is of those which are made only by stirring or grinding in the Mortar without any fire, and so is made *Unguentum nutritum*. The second is, when we dissolve Waxe in Oyle, Fat, or some such substance with fire: and being all dissolved, wee mingle the powders according to the proportion we noted before. After which manner are made *Unguentum Aureum*, *Basilicon*, *Diapompholigos*, *Desiccativum rubrum*, *Emulatum*. The third sort is, when we bruise herbes with a Pestell, and mingle them with Axungy, boyling them together, and then straining them, and the Oyntment is that which is strained. Therefore let us proceed to explaine this by examples.

Unguentum nutritum.

Rx. *Lytbar. auri triti & loti* ℥β. *olei ros.* ℥i. *aceti ros.* ℥iv. *fiat Unguentum.* First, wee put the Lytharge into the Mortar, powring in a little Oyle, and working it with a Pestell, that it may grow thicke, then with the Oyle we put a little Vinegar, continually working, untill they mingle into one body, now and then betweene whiles adding sometimes a little Oyle, sometimes a little Vinegar, untill the whole bee brought to the consistence of an Oyntment. If of an Oyntment of this kinde thou wouldst make a blacke plaster, by degrees consume all the Vinegar, so shall the plaster shine and grow blacke.

Unguentum aureum.

Rx. *Cera citr.* ℥vi. *olei boni* ℥ii. *tereb.* ℥ii. *resin. & coloph. an.* ℥iβ. *olib. mastich. an.* ℥i. *croc.* ℥i. *fiat Unguentum.* First, dissolve the Waxe with a good part of the Oyle, then adde the Rosin and Colophony broken small. These being dissolved, take the composition from the fire, and then adde the Turpentine; when the whole is somewhat cooled, adde the *Olibanum* and Masticke being finely powdred, then the Saffron, which shall be macerated in the rest of the Oyle.

Ung. Tetrapharmacum, seu Basilicon.

Tetrapharmacum is so called, because it is made of foure simple medicines, Waxe, Rosin, Pitch, Tallow, of each a like quantity, and so equally mixed.

Rx. *Resin. picis nigr. adip. vituli. & cera an.* ℥ii.β. *Olei veteris olivarum maturarum,* ℥iβ. or if you would have it harder, ℥i. that oyntment also is called *Basilicon*, the Waxe

Waxe being cut small and dissolved in Oyle, then adde the rest of the things, which being dissolved, thou shalt have the desired oyntment.

Rx. *Olei ros. ʒix. cer. alb. ʒiii. succi solani hortensis, ʒiv. Cerus. lot. ʒi. Pompholygos, plum- Ung. Diapom- bi usti & loti, olib. puri, an. ʒβ. fiat Unguentum.* Dissolve the Waxe in the Oyle with a gentle fire, then you shall take it from the fire, and adde to the rest of the ingredients, working them together in a stone Mortar, powring on the juice by degrees, at least so much of it as will incorporate. *phalygos.*

Rx. *Lap. calam. ter. sig. an. ʒii. Litharg. auri, cerus. an. ʒiβ. Camphor. ʒβ. cera, ʒiiβ. Olei rosat. viol. an. ʒiii. fiat Unguentum.* Dissolve the Waxe in the Oyle, then set it to coole, and worke in the powders with a spatter, and at last adde the Camphor dissolved in a little Oyle of Roses, or Rosewater. *Ung. de succis vum rubrum.*

Rx. *Rad. enul. campan. coct. cum aceto & contus. ut decet lbβ. Axung. porci, olei commu. an. ʒiβ. argen. vivi extincti, & tereb. lot. an. ʒi. sal. commu. pulverati, ʒii. incorporate* them according to art. The boyled rootes must be drawne through a Sieve, which being boyled by a gentle fire with the *Axungia*, must bee continually stirred, then put to the Salt with Oyle & Waxe: when you set it from the fire to coole, then adde the Quicksilver, being killed with a little *Axungia* and Turpentine. *Ung. Emulatum.*

Rx. *Olei rosat. ʒix. ceras. alb. ʒiii. cer. alb. ʒii. make it thus: Let the Cerusse bee finely* powdred, and put into the Oyle and Waxe whilst it is hot, and so worke the whole together, untill they shall be brought into a body. *Ung. album Rha- sis.*

Rx. *Rad. Ath. lbj. semi. lini, fœnugr. an. lbβ. Scilla ʒiii. Olei com. lb. ii. cer. lbβ. terebint. gum. heder. galb. an. ʒi. coloph. & resn. ʒiii.* The rootes and seeds being bruised, are infused for three dayes in five pintes of water; boyle them untill three ounces be consumed, and then draw forth the Mucilage, and boyle it with the Oile, then adde Waxe cut small: these being taken from the fire, the *Galbanum* being dissolved with Vinegar, & mingled with the Turpentine, must be added together with the Gumme *Hedera*, Colophony, and Rosin. *De Alibea.*

Rx. *Ocul. populi arb. lbjβ. fol. papaveris nigr. Mandrag. hyoscyami, lactuca, sœmpervi- Ung. Populeum vi parvi & magni, viola nigra, solani, umbilici veneris, seu cymbalar. bardana, an. ʒβ. (Cordus, Fernelius, & Nicolaus singulorum ʒiii. præscribunt) Adipis suilli recentis salis expertis, lbii. vini boni, lbj. fiat Unguentum.* The Poplar buds and Violet leaves must be bruised and macerated in the *Axungia* for the space of two moneths, that is, untill the rest of the herbes beready; for they cannot bee gathered before the Summer time, but the Poplar buds and Violets may be had in March. They must be bruised and mingled very well, and set in a warme place for eight dayes; then adde one pinte of strong Vinegar, and boyle them till it be consumed, which may bee perceived by casting a little of it into the fire, then straine it forth, and put up the Oyntment.

Rx. *Tereb. cer. alb. res. an. ʒxiv. Opopanacis, floris, seu viridis aris (nam hic flos aris non proprie accipitur pro granulis, quæ scintillarum instar ab are exiliunt dum a fabris ferrariis aqua tingitur: sed pro viridi aris usurpatur, cujus contra maligna ulcera notæ sunt vires, contra quæ omnino id Unguentum est comparatum) an. ʒii. ammon. ʒxiv. aristol. lon. thuris masculi an. ʒvi. myrrha & galbani an. ʒiii. bdellii, ʒvi. Litharg. ʒix. olei, lbii. fiat Unguentum.* The Litharge is to be mingled with two ounces of Oyle for the space of five houres, and with a gentle fire to be boyled untill it come to the consistence of Honey, and be alwayes stirring, lest it burne: being taken from the fire and warme, the Waxe and the Rosin, being dissolved, with the rest of the Oyle, must be added. Then put to it, when it is cooling, the Gummess dissolved in Vinegar, boyled and incorporated with the Turpentine. Then the *Aristolochia*, Myrrhe, and Frankinsense are to be mingled, and last of all the Verdigrease, being in fine powder, and sprinkled in: and so the unguent is made. *Ung. Apostolicum.*

Rx. *Cortic. median. castan. cortic. median. querc. cortic. median. gland. mirtil. eques. cortic. fabar. acinor. uvar. sorbor. siccor. immatur. mespillor. immaturor. rad. chelidon. folior. prunor. silvest. an. ʒiβ. Aqua plantaginis, lbviii. cer. nov. ʒviiiβ. olei myrtillor. lbiiβ.* Then these things which follow, being finely powdred, are to be sprinkled in. *comitiss.*

Rx. *Pulveris corticis mediani castan. corticis mediani gland. cortic. median. arb. gland. id est, querc. gallar. an. ʒi. Cineris off. cruris bovis, myrtill. acinor. uvar. sorbor. siccor. an. ʒβ.*

Trochiscorum de carabe, ℥ii. fiat Unguentum. First, make a decoction *corticis mediani arboris quercus, acini uuar. rad. chelid. messil. sorbor. equis. seminis myrtil. folior. pruni sylvestris, cort. fabar. cortic. mediani gland. cortic. castan. & gallar.* in the Plantaine water for the space of two houres, then straine it, and divide the liquor into nine parts, washing the Waxe, dissolved with the Oyle of Myrtils seven times, the liquor being all spent, and the Waxe and Oyle being melted, then insperge the powders, *Cruris bovis, ossium, cortic. median. querc. median. cortic. gland. castan. gallar. sorbor. messil. seminum myrtil. acinor. uuar.* and at last the *Trochisces carab.* after this manner shall you make this Oyntment.

Ung. pro stoma-
cho.

Rx. Olei absinth. mastich. de spic. rosat. an. ℥β. pulver. absinth. ros. major. menth. an. ℥i. Caryoph. cinam. mastich. galang. an. ℥i. Powder those things which are to bee powdered, and with a sufficient quantity of Waxe make a soft oyntment, wherewith let the stomacke be annointed one houre before meales continually.

Ung. ad morsus
rubiosos. ex li. i.
Gal. de comp. sec.
genera.

Rx. Cer. alb ℥ii. cerus. litharg. auri, an. ℥i. myrrh. medull. cervi, an. ℥ii. thuris, ℥i. olei, ℥β. Boyle the Litharge in the oyle to a meane consistence, then adde to the Waxe & Cerusse, and when it will not sticke to the fingers, take it from the fire, and put in the Medulla, when it beginneth to coole, the Myrrha and Thuris, being finely powdered, must be cast in by little and little, and the oyntment may be put up for use. The chops of the fundament, and remollient Pessaries are likewise made of it, and it is very good against the bitings of madde Dogges, and the punctures of nerves and tendons, keeping wounds so that they doe not agglutinate.

3. De comp. med.
sec. gen.

Rx. Picis pinguis, ℥i. Opopanacis in aceto forti, oleo liliorum, & veteri porci axungia cocti, ℥iii. fiat Unguentum. *Oleum ex sinapi* is good against those bitings of mad beasts and punctured nerves: for it doth open wounds when they are cicatrized. Oyntments are used to overcome the contumacy of a stubborne evill by their firme and close sticking to, especially if there shall need no medicine to goe further into the body.

CHAP. XXVII.

Of Cerats and Emplasters.

What a Cerat
is.

The differen-
ces.



Such affinity there is in the composition of a Cerat and Emplaster, that oftentimes the one is taken for the other, as is usually done in Oyntments and Liniments. A Cerat is a composition more solide and hard than an oyntment, and softer than a plaster, having his name from Waxe, which taking away the fluidness of the oyle, bringeth him to his consistence. The differences of Cerats are taken some from the parts by which they are called, as *Ceratum stomachicum*: some from the effects, as *Ceratum refrigerans Galeni*: Others from the simple medicaments which are the chiefe in the composition, as, *Ceratum Santalinum*. The proper matter of Cerats is, new Waxe & Oyles, being appropriated to the grieve of these, or those parts, so that Liniments & Oyntments doe scarce differ from Cerats, if they admit of Waxe: for if oyntment of Roses should have Waxe added to it, it were no longer an oyntment, but a Cerat.

Cerats, which are made with Rosins, Gummes, and Metals, doe rather deserve the names of Emplasters than Cerats. And therefore *Ceratum ad Hernias*, we commonly call *Emplastrum contra Rupturam*. If that paine or inflammation do grieve any part, we make Cerats of plaster, dissolved with Oyle, lest that the more hard and heavie consistence of the Emplaster should be troublesome to the part, and hinder perspiration: and therefore laying aside the composition of Cerats, let us speake of Emplasters.

Emplasters.

An Emplaster is a composition which is made up of all kinde of medicines, especially of fat and dry things, agreeing in one grosse, viscous, solid, and hard body sticking to the fingers. The differences of Emplasters are taken from those things, which the variety of oyntments are taken from. Of those things which goe into the composition of an Emplaster, some are only used for their quality and faculty, as

Wine,

Wine, Vinegar, Juices. Others to make the consistence, as Litharge (which, according to *Galen*, is the proper matter of Emplasters) Wax, Oyle, and Rosin. Others be usefull for both, as, Gums, Metals, parts of beasts, Rosin, as Turpentine to digest, to cleanse, and dry. Of Emplasters, some are made by boyling, some are brought into a forme without boyling; those which bee made without fire, doe sordainly dry, nor are they viscons: they are made with meale and powder, with some juice, or with some humid matter mingled with them. But plasters of this kind may rather bee called hard oyntments, or cataplasmes: for plasters properly so called are boyled, some of them longer, some shorter, according to the nature of those things which make to the composition of the Emplaster: Therefore it will bee worth our labour to know what Emplasters doe aske more, or which lesse boyling. For roots, woods, leaves, stalkes, flowers, seeds, being dryed, and brought into powder, are to be added last, when the plaster is boyled as it were, and taken from the fire, lest the vertue of these things be lost. But if greene things are to be used in a composition, they are to be boyled in some liquor, and being pressed forth, that which is strained to be mingled with the rest of the composition; or if there be juice to be used, it is to be bruised and pressed forth, which is so to be boyled with the other things, that nothing but the quality is to remaine with the mixture, as wee use to doe in *Empl. de Janua, seu Betonica, & Gratia Dei*. The same is to bee done with Mucilages, but that by their clamminesse they do more resist the fire. But there doth much of oyle and honey remaine in plasters when they are made. Those juices which are hardned by concretion, as, *Aloës, Hypocistis, Acacia*, when they are used in the composition of a plaster, and be yet new, they must be macerated and dissolved in some proper liquor, and then they are to bee boyled to the consumption of that liquor. Gums, as, *Opopanax, Galbanum, Sagapanum, Ammoniacum*, must be dissolved in Wine, Vinegar, or *Aqua vita*, then strained and boyled to the consumption of the liquor, and then mixed with the rest of the plaster. And that they may have the exact quantity of Gums and Pitch, it is necessary that first they bee dissolved, strained, and boyled, because of the stickes and sordid matter which are mingled with them. You must have respect also to the liquor you use to dissolve them in, for Vinegar of the best Wine doth more powerfully penetrate, than that which is of weake and bad Wine.

Other Gums, which are drier, are to be powdred, and are to bee mingled with plasters last of all. Metals, as, *Æsustum, Chalcitis, Magnes, Bolus Armenus, Sulphur, Auripigmentum*, and others, which may bee brought to powder, must bee mingled last, unlesse advice be given by long boyling to dull the fierce qualities of them. The like consideration is to be had of Rosin, Pitch, and Turpentine, which must be put in after the Wax, and may not be boyled but very gently; but the fats are mingled whilst the other things are boyling. The Litharge is to be boyled with the oyle to a just consistence, if wee would have the plaster dry without biting. Cerusse may endure as long boyling, but then the plaster shall not bee white, neither will the Litharge of silver make a plaster with so good a colour as Litharge of gold. Moreover, this order must bee observed in boyling up of plasters: the Litharge must bee boyled to his consistence; juices or mucilages are to be boyled away, then adde the fats, then the dry Rosin, Wax, Gums, Turpentine, and after them the powders: You shall know the plaster is boyled enough by his consistence, grosse, hard, glutinous, and sticking to the fingers, being cooled in the ayre, water, or upon a stone. Also you shall know it by his exact mixtion, if that all the things become one masse hard to be broken.

Signes of
plaster perfectly
boyled.

The quantity of things which are to be put into a plaster can hardly be described, but an artificiall conjecture may be given, by considering the medicaments, which make the plaster stiffe, and of a consistence, and the just hardnesse and softnesse they make being boyled. Wax is not put into such plasters wherein is *Labdanum*, for that is in stead of Wax. For if there shall be in the composition of a plaster some emplasticke medicaments, the Wax shall be the lesse: Contrariwise, if they shall bee almost all liquid things, the Wax shall be increased so much as shall be necessary for the consistence of the plaster. The quantity of the Wax also must bee altered ac-

The quantity
of things to be
put into pla-
sters.

cording to the time, or the aire; therefore it is fit to leave this to the art and judgement of the Apothecarie. Emplasters are sometimes made of ointments by the addition of waxe, or dry rofine, or some other hard or solide matter. Some would that a handfull of medicaments poudred, should be mingled with one ounce, or an ounce and an halfe of oile, or some such liquor, but for this thing nothing can certainly bee determined: Onely in plasters described by the Antients there must bee great care had, wherein hee must bee very well versed, who will not erre in the describing the dose of them; and therefore wee will here give you the more common formes of plasters.

*Empl. de Vigo
with Mercury.*

Rx. ol. chamam. aneth. de spica, liliacei, an. ʒ ii. ol. de croco, ʒ i. pingued. porci, lb i. pingued. vitul. lb ʒ. euphorb. ʒ v. thuris, ʒ x. ol. lauri, ʒ i ʒ. ranas viv. nu. vi. pingued. viper. vel ejus loco human. ʒ ii ʒ. lumbricor. lotor. in vino, ʒ iii ʒ. succi ebuli, enul. ana, ʒ ii. schœnantbi, stachados, matricar. an. m ii. vini oderiferi, lb ii. litharg. aur. lb i. terebintb. clara, ʒ ii. styracis liquid. ʒ i ʒ. argenti vivi extincti, so much as the present occasion shall require, and the sicke shall be able to beare, and make up the plaister. To one pound of the plaster they doe commonly adde foure ounces of quick-silver, yet for the most part they doe encrease the dose, as they desire the plaster should be stronger: the wormes must be washed with faire water, and then with a little wine to cleanse them from their earthie filth, of which they are full, and so the frogs are to be washt and macerated in wine, and so boiled together to the consumption of a third part; then the squinanth must bee bruised, the feverfew and the stæchas cut small, and they being added, to be boiled to the consumption of one pint, and being boiled sufficiently, the decoction being cooled shall bee strained and kept; and the Letharge is to be infused for twelve houres in the oile of chamomile, dill, lillies, saffron, and the axungies above spoken of. Then boile them all with a gentle fire, by and by taking it from the fire, and adde one quart of the decoction above spoken of, then set it to the fire againe that the decoction may bee consumed, and then by degrees adde to the rest of the decoction: the oile of spike shall bee reserved unto the last, which may give the plaster a good smell. Then are added the juices of walwort and enula, which must bee boiled untill they bee wasted away. Afterwards it being taken from the fire, to the composition is added the frankincense and euphorbium, and white wax as much as shall suffice. When the whole masse shall coole, then at last is mingled the quick-silver extinct, turpentine, oile of bitter almonds, baies, spike, of line, styrax and axungia, being continually stirred, and it shall bee made up upon a stone into rolls. Unlesse the quick-silver be well extinguished, it will runne all into one place, and unlesse you tarrie untill the composition coole, it will vapour away in fume.

*Ceratum aspi ex
Philagrio.*

Rx. croci, ʒ ij. bdellii, mastich. ammon. styrac. liquid. an. ʒ ʒ. cera alb. lb ʒ. tereb. ʒ vi. medul. cruris vacca, adipis anserini, an. ʒ i. æsypi, vel si desit, axung. gallin. ʒ ix. olei nard. quantum satis ad magdaleones formandos, expressionis scilla, ʒ i ʒ. olibani, sevi visul. ʒ i. The æsypus, sepum, adeps, medulla, cera, are to bee dissolved together; when they coole, adde the ammoniacum dissolved in the decoction of sænugreeke and chamomile, halfe an ounce, and so much juice of squils, then put to the styrax and turpentine, stirring them continually; then adde the bdellium, olibanum, mastich, aloes, brought into fine powder, and when they are perfectly incorporated into a masse, let them bee made up with oleum nardinum into rolls.

De gratia Dei.

℞. terebintb. lb ʒ. resin. lb i. cer. alb. ʒ iv. mastich. ʒ i. fol. verben. betonic. pimpinel. an. m i. The herbes being greene, the tops are to bee cut and bruised in a stone mortar, and boiled in red wine to the consumption of one third part. To the strained liquor adde waxe cut into small pieces, and being dissolved by the fire; the liquor being consumed put to the rofine, when it shall coole adde the Mastick poudred, working it with your hands, by which it may bee incorporated with the rest of the things.

*De janna seu de
Belonica.*

℞. succi beton. plantag. apii, an. lb i. cera, picis, resin. tereb. an. lb ʒ. fiat empl. the juices are to bee mingled with the waxe being dissolved, and boiling them untill three parts be consumed, adde the rofine and pitch, which being dissolved and hot, must be strained, and then adde the Turpentine, and make up the plaster.

R.

℞. *croc. picis com.* (or rather *picis navalis*, because this emplaster is used to disperse and draw forth the matter which causeth the paine of the joints) *coloph. cera, an. 3 ii.* Emplastrum oxy-
croceum.
tereb. galb. ammon. thuris, myrrha, mastich. an. 3 v ss. The *cera, pix*, and *colophonia* are by little and little to bee dissolved, to which adde the gummies dissolved according to art, and mingled with the terebinth; and taking it from the fire adde the *thus, myrrha*, and at last the *crocus* in fine powder, and then make it up into rowles with oyle of wormes.

℞. *ol. com. lb ii. cerus. subtilis. lb i.* boile them together with a gentle fire, stirring them continually untill they come to the body of an emplaster: if you would have the plaster whiter, take but 3 ix. of the oile. De cerusa.

℞. *lytharg. triti, acet. fortis. an. lb ss. ol. antiq. lb i. fiat emplastrum:* let the oile bee mingled with the litharge for the space of twelve houres, then boile them untill they come to a good consistence, putting in the vinegar by little and little; but you shall not take it from the fire untill the vinegar be quite wasted away. Tripharmacum
seu nigrum.

℞. *ol. vet. lb iii. axung. vet. sine sale, lb ii. lytharg. trit. lb iii. vitriol. 3 iv.* let the oyle bee mingled with the lytharge for the space of twelve houres, and boile them to a good consistence, then adde to the axungia, stirring them continually with a spatter made of the palme tree, reed, or willow, and being sufficiently boiled, take it from the fire, and adde the vitrioll in fine powder. Diapalma, seu
diachalciceos.

℞. *picis naval. aloes, an. 3 iii. lytharg. cera, coloph. galban. ammoniac. an. 3 ii. visc. querai, 3 vi. gypsi ust. utriusque aristoloch. ana, 3 iv. myrrha, thuris, an. 3 vi. tereb. 3 ii. pulveris vermium terrestrium, gallar. utriusq. consolid. bol. arm. an. 3 iv. sang. humani, lb i. fiat emplastrum.* If you would have it of a very good consistence, you may add of the oile of myrtills or mastich, lb ss. you shall make it thus: Take the skinne of a Ramme cut in pieces, and boyle it in an hundred pints of water and vinegar untill it come to a glew or stiffe gelly, in which you shall dissolve the *visc. quer.* then adde the pitch and waxe broken into small pieces, and if you will you may adde the oile with them, afterwards the *galban.* and *ammoniac.* dissolved in vinegar, being mingled with the terebinth, may be added. Then adde the litharge, *gypsum, bol. aristoloch. consolid.* *vermes, & sang. human.* At last the *myrrhe, thus, colophon,* and *aloe*, stirring them continually; and that they may bee the better mingled, worke the plaster with a hot pestell in a mortar. Contra Cupidum
rami.

℞. *mucag. sem. lini, rad. alth. fœnug. median. corticis ulmi, an. 3 iv. olei liliacei, cham. aneth. an. 3 i ss. ammon. opopanax. sagap. ana 3 ss. croci, 3 ii. cera nov. lb ss. tereb. 3 ss. fiat empl.* *Fernelius* hath 3 xx. of wax: the wax being cut small must be mingled with the oiles and the mucilages, stirring them continually with a wooden spatter till the liquor be consumed. Then the gummies dissolved and mingled with the terebinthina must be added, and last of all the saffron finely powdered. De mucaginibus.

℞. *ol. ros. myrtil. ung. populeon, ana, 3 iv. pinguedinis gallin. 3 ii. sebi arietis castrati, sepi vaccini, an. 3 vi. pingued. porci, 3 x. lytharg. auri, argenti, an. 3 iii. cerus. 3 iv. mini, 3 iii. tereb. 3 iv. cera, q. s. fiat emplastrum vel ceratum molle.* The lithargiros, *cerusa*, and *minium* are to be brought into fine powder, severally being sprinkled with a little rose water, lest the finest of it should flye away; these being mingled with the oile of roses and myrtles, with a gentle fire may bee boiled untill they come to the consistence of hony; then adde the axungia's, and boile them till the whole grow black, after adde the sebum, and that being dissolved take it from the fire, and then adde the *unguentum populeon*, and some waxe if there be need, and so bring it to the forme of a plaster. De minio.

℞. *lytharg. puri pul. 3 x ii. ol. irin. chamam. aneth. an. 3 viii. mucag. sem. lini, fœnug. rad. alth. ficum ping. uvuar. passar. succi ireos, scilla, œsopi, ictthyocolle, an. 3 xii ss. tereb. 3 iii. res. pini, cera flava, an. 3 ii. fiat emplastrum:* The litharge is to be mingled with the oyle before it be set to the fire, then by a gentle fire it is to be boiled to a just consistence; after the mucilage by degrees must bee put in, which being consumed the juices must bee added and the ictthyocolle, and they being wasted too, then put to the waxe and rofine, then taking the whole from the fire, add the *œsopus* and terebinthina. Diachylon melleum.

We use plasters when wee would have the remedy sticke longer and firmer to the part The use of
plasters.

part, and would not have the strength of the medicament to flye away or exhale too suddenly.

CHAP. XXVIII.

Of Cataplasmes and Pultisses.

The matter of
cataplasmes.



Cataplasmes are not much unlike to emplasters lesse properly so called, for they may be spread upon linnen cloaths and stoupes like them, and so applied to the grieved parts. They are composed of roots, leaves, fruits, flowers, seeds, herbes, juices, oiles, fats, marrowes, meales, ro-sines. Of these some must bee boiled, others crude. The boiled are made of herbes boiled tender, and so drawne through an haire searse, adding oiles and axungia's thereto. The crude are made of herbes beaten, or their juices mixed with oile and flower, or other powders appropriate to the part or disease, as the Physician shall thinke fit. The quantity of medicines entring these compositions can scarce be defined, for that they must be varied as we would have the composition of a softer or harder body. Verily they ought to be more grosse and dense when as we desire to ripen any thing, but more soft and liquid when wee endeavour to discusse. We use cataplasmes to assuage paine, digest, discusse and resolve unnaturall tumors and flatulencies. They ought to be moderately hot and of subtile parts, so to attract and draw forth; yet their use is suspected the body being not yet purged, for thus they draw downe more matter into the affected part. Neither must wee use these when as the matter that is to be discussed is more grosse and earthy, for thus the subtler parts will be onely discussed, and the grosse remaine impact in the part unlesse your cataplasme be made of an equall mixture of things, not only discussing, but also emollient, as it is largely handled by Galen.

Lib. 2. ad glauc.
ubi desibiv. ho.

An anodine ca-
taplasme

A ripening ca-
taplasme.

A discussing ca-
taplasme.


How pultisses
differ from ca-
taplasmes.

A ripening ca-
taplasme.

This shall be largely illustrated by examples. As, *Rx. medul. panis, ℥ss. decoquantur in lacte pingui, adde olei chamem. ℥ss. axung. galin. ℥i. fiat cataplasma.* Or, *Rx. rad. alth. ℥iii. fol. malv. senecionis, an. m i. sem. lini, fenug. an. ℥ii. ficus, ping. nu. vi. decoquantur in aqua, & per setaceum transmittantur, addendo olei lilior. ℥i. far. bord. ℥ii. axung. porcin. ℥i. fiat cataplasma.* Or, *Rx. far. fab. & orob. an. ℥ii. pulv. chamem. & melil. an. ℥iii. ol. irin. & amygd. amar. an. ℥i. succi rut. ℥ss. fiat cataplasma.* Pultisses differ not from cataplasmes, but that they usually consist of meales boiled in oile, water, hony, or axungia. Pultisses for the ripening of tumours are made of the floure of barley, wheat, and milke, especially in the affects of the entralles; or else to dry and binde, of the meale of rice, lentiles, or *Orobis* with vinegar; or to cleanse, and they are made of hony, the floure of beanes and lupines, adding thereto some old oile, or any other oile of hot quality, and so make a discussing pultis. Also anodine pultisses may bee made with milke; as thus for example, *Rx. farin. triticea, ℥ii. mica panis purissimi, ℥iii. decoquantur in lacte, & fiat pulticula.* *Rx. farin. hordei & fab. an. ℥ii. far. orob. ℥iii. decoquantur in hydromelite, addendo mellis quart. i. olei amygd. amar. ℥ii. fiat pulticula.* Wee use pultisses for the same purpose as wee doe cataplasmes, to the affects both of the internall and externall parts. Wee sometimes use them for the killing of wormes, and such are made of the meale of lupines boiled in vinegar, with an Oxes gall, or in a decoction of Worme-wood, and other such like bitter things.

CHAP. XXIX.

Of Fomentations.

 *Foetus* or fomentation is an evaporation or hot lotion, chiefly used to mollifie, relaxe and assuage paine, consisting of medicines having these faculties. A fomentation commonly useth to be moist, being usually made of the same things as embrocations, to wit, of roots, seeds, flowers, boiled in water or wine. The roots here used are commonly of mallowes, marsh-mallowes, and lillies. The seedes are of mallowes, marsh-mallowes, parslly, smallage, line, fenugreeke. Flowers are of chamomile, melilote, figges, raisons, and the like: all which are to bee boiled in wine, water, or lye, to the consumption of the third part or the halfe: as,

Rx. Rad. alth. & lilil. an. ʒiii. sem. lini, fœnuq. cumin. an. ʒiii. flo. cham. melil. & aneth. an. p. i. summit. orig. m. ʒ. bulliant in aquis partibus aqua & vini, aut in duabus partibus aqua, & una vini, aut in Lixivio cineris sarmentorum, ad tertia partis consumptionem, fiat foetus. In imitation hereof you may easily describe other fomentations, as occasion and necessity shall require.


We use fomentations before we apply cataplasmes, oyntments or plasters to the part, that so we may open the breathing places or pores of the skin, relaxe the parts, attenuate the humour, that thus the way may be the more open to the following medicines. The body being first purged, fomentations may be used to what parts you please. They may be applyed with a female sponge, for it is gentler and softer than the male; with felt, woollen clothes, or the like dipped in the warme decoction wrung out, and often renewed; otherwise, you may fill a Swines bladder halfe full (especially in paines of the sides) of the decoction, or else a stone bottle, so to keep hot the longer; yet so, that the bottle bee wrapped in cotton, wooll, or the like soft thing, that so it may not by the hardnesse and roughnesse offend the part, according to *Hippocrates*.

Their use.

2. De victu in acutis.

CHAP. XXX.

Of Embrocations.

 *N Embroche*, or Embrocation is a watering, when as from on high wee (as it were) shewre downe some moisture upon any part. This kinde of remedy is chiefly used in the parts of the head, and it is used to the coronall suture, for that the skull is more thin in that part, so that by the spiracula or breathing places of this suture, more open than those of the other sutures, the force of the medicine may more easily penetrate unto the *Meninges*, or membranes of the braine. The matter of Embrocations is roots, leaves, flowers, seeds, fruits, and other things, according to the intention and will of the Physitian. They are boyled in water and wine, to the halfe or third part. Embrocations may also be made of Lye or Brine against the cold and humide affects of the braine. Sometimes of oyle and vinegar, otherwhiles of oyle onely. *Rx. fol. plantag. & solan. an. m. i. sem. portul. & cucurb. an. ʒii. myrtil. ʒi. flor. nymph. & ros. an. p. ʒ. fiat decoct. ad ʒbi. cum aceri ʒii. si alit̃ subeundum sit, ex qua irrigetur pars inflammata.* In affects of the braine, when we would repercussē, we often and with good successe use oyle of Roses, with a fourth part of vinegar:

What an Embrocation is.

We use Embrocations, that together with the ayre drawne into the body by the *Diafole* of the arteries, the subtler part of the humour may penetrate, and so coole the inflamed part: for the chiefe use of embrocations is in hot affects. Also wee use embrocations, when as for feare of an hæmorrhagie, or the flying asunder of a broken or dislocated member, we dare not loose the bandages wherewith the member is bound. For then wee drop downe some decoction or oyle from high upon the bandages;

Their use.

bandages, that by these the force of the medicine may enter into the affected member.

CHAP. XXXI.

Of Epithemes.

What an Epitheme is.



Epithema, or an Epitheme, is a composition used in the diseases of the parts of the lower and middle belly, like to a fomentation, and not much unlike an embrocation. They are made of waters, juices, and powders, by means whereof they are used to the heart, chest, liver, and other parts. Wine is added to them for the more or lesse penetration, as the condition of the hot or cold affect shall seeme to require; for if you desire to heate, more wine must be added, as in swooning by the clotting of blood, by the corruption of seed, by drinking some cold poyson: the contrary is to be done in a fainting by dissipation of the spirits by feaverish heates, also vinegar may be added. The matter of medicines proper to the entrailes is formerly described, yet we commonly use the species of electuaries, as the species elect. triasantali the liver being affected, and Diamargariton in affects of the heart. The proportion of the juices or liquors to the powders, uses to be this, to every pinte of them ʒi. or ʒiβ. of these, of wine or else of vinegar ʒi. You may gather this by the following example.

In the sixth Chapter.

A cordiall Epitheme.

Rc. aqu. ros. bugl. borag. an. ʒiii. succi scabios. ʒii. pul. elect. diamarg. frigid. ʒii. cort. citricci ʒi. coral. ras. ebor. an. ʒβ. sem. citri & card. ben. an. ʒiiβ. croci & moschi an. gra. 5. addendo vini albi ʒii. fiat Epithema pro corde.

Their use.

Epithemes are profitably applied in heeticke and burning feavers to the liver, heart, and chest, if so be that they be rather applyed to the region of the lungs, than of the heart; for the heate of the lungs being by this meanes tempered, the drawn in ayre becomes lesse hot in pestilent and drying feavers. They are prepared of humecting, refrigerating, and cordiall things, so to temper the heate, and recreate the vitall faculty. Sometimes also we use Epithemes to strengthen the heart, and drive there-hence venenate exhalations, lifted or raised up from any part which is gangrenate or sphacelate. Some cotton, or the like, steeped or moistened with such liquors and powders warmed, is now and then to be applyed to the affected entraile; this kinde of remedy, as also all other topick and particular medicines, ought not to be used, unlesse you have first premised generall things.

CHAP. XXXII.

Of potentiall Cauteries.

The use of potentiall cauteries.



That kinde of Pyroticke, which is termed a Potentiall Cauterie, burnes, and causeth an eschar. The use of these kindes of Cauteries is to make evacuation, derivation, revulsion, or attraction of the humours by those parts whereto they are applyed. Wherefore they are often and with good successe used in the punctures and bites of venomous beasts, in a venenous, as also in a pestilent Bubo and Carbuncle, unlesse the inflammation be great: for the fire doth not only open the part, but also retunds the force of the poyson, calls forth and plentifully evacuates the conjunct matter. Also they are good in phlegmaticke and contumacious tumours; for by their heate they take away the force and endeavours of our weake heate. Also they are profitably applyed to stanch bleeding, to cate or waste the superfluous flesh of ulcers and wens, to bring downe the callous lips of ulcers, and other things too long here to insist upon.

The matter of them.

The materials of these Cauteries are Oake ashes, Pot ashes, the ashes of Tartar, of Tithymals or sparges, the Figge-tree, the stalkes of Coleworts and Beanes, cuttings of

of Vines, as also *sal ammoniacum*, *alkali*, *axungia vitri*, *sal nitrum*, *Romane Vitrioll*, and the like; for of these things there is made a salt, which by its heate is causticke and escharoticke, like to an hot iron and burning coale: Therefore it violently looses the continuity by eating into the skinne, together with the flesh there-under. I have thought good here to give you divers formes of them.

Take of unquencht Lime extinguished in a bowle of Barbers Lye three pounds: When the Lye is settled, let it be strained, and into the straining put of *Axungia vitri*, or Sandiver, calcined Argol, of each two pounds, of *Sal nitrum & ammoniacum*, of each foure ounces, these things must be beaten into a grosse powder, then must they be boyled over the fire, and after the boyling let them remaine in the Lye for foure and twenty houres space, being often stirred about, and then strained through a thicke and double linnen cloth, lest any of the earthy drosse get thorow together with the liquor. This strained liquor, which is as cleare as water, they call *Capitellum*, and they put it in a brazen Bason, such as Barbers use, and so set it upon the fire, and as soone as it boyles, they keep it with continuall stirring, lest the salt should adhere to the Bason; the *Capitellum* being halfe boyled away, they put in two ounces of powdred vitrioll, so to hasten the falling of the eschar, and so they keep the bason over the fire untill all the liquor be almost wasted away. Then they cut into peeces the salt or that earthy matter, which remains after the boyling away of the *Capitellum*, & with a knife or hot iron spatula forme them into cauterics of such figure and magnitude as they thinke fitting, and so they lay them up, or keep them for use in a violl or glasse closely stopped, that the ayre get not in: Or,

The formes of them.

Take a bundle or sufficient quantity of Beane stalkes or huskes, of Colewort stalks two litle bundles, of cuttings of Vines foure bundles, burn them all to ashes, which put into a vessell of river water, so let them infuse for a dayes space, being stirred ever now and then; to this adde two pounds of unquencht lime, of *Axungia vitri* halfe a pound, of calcined Tartar two pounds, of *Sal niter* foure ounces, infuse all these, being made into powder, in the foresaid Lye for two or three dayes space, often stirring it, then straine the *Capitellum* or liquor through a thicke cloth untill it become cleare. Put it into a bason, and set it over the fire, and when as the moisture is almost wholly spent, let two or three ounces of vitrioll be added, when the moisture is sufficiently evaporated, make cauterics of that which remaines, after the formerly mentioned manner.

Take of the ashes of sound, knotty, old Oake as much as you please, make thereof a Lye; powre this Lye againe upon other fresh ashes of the same wood, let this be done three or foure times, then quench some lime in this Lye, & of these two make a *Capitellum*, whereof you may make most approved cauterics. For such ashes are hot in the fourth degree; and in like sort the stones, whereof the lime by burning becomes fiery and hot to the fourth degree: Verily, I have made cauterics of Oake ashes only, which have wrought quickly and powerfully. The *Capitellum* or Lye is thought sufficiently strong, if that an Egge will swimme therein without sinking.

The signe of good *Capitellum*.

Or, Take of the ashes of Bean stalkes three pounds, of unquencht lime, Argoll, of the ashes of Oake wood, being all well burnt, of each two pounds. Let them for two dayes space be infused in a vessell full of Lye made of the ashes of Oake wood, and be often stirred up and downe. Let this Lye then be put into another vessell, having many holes in the bottome thereof, covered with strums or straw pipes, that the *Capitellum* flowing through these strait passages may become more cleare. Let it be put twice or thrice upon the ashes, that so it may the better extract the heate and causticke quality of the ashes. Then putting it into a Barbers bason, set it over the fire, and when it shall begin to grow thicke, the fire must be increased, and cauterics made of this concreting matter.

The following cauterics are the best that ever I made tryall of, as those that applyed to the arme in the bignesse of a Pease, in the space of halfe an houre without paine, especially if the part of it selfe be painlesse and free from inflammation, cate into the skinne and flesh even to the bone, and make an ulcer of the bignesse of ones fingers end, and they leave an eschar so moyst and humide, that within foure or five

The faculty of the silken Cautery.

dayes

The cause of
the name.

dayes space it will fall away of it selfe without any scarification. I have thought good to call these cauteries Silken or Velvet ones, not onely for that they are like Silke, gentle and without paine, but chiefly because I obtained the description of them of a certaine Chymist, who kept it as a great secret, for some Velvet and much entreaty: Their description is this.

Their descrip-
tion.

Take of the ashes of Beane stalkes, of the ashes of Oake wood well burnt, of each three pounds, let them bee infused in a pretty quantity of river water, and bee often stirred up and down, then adde thereto of unquencht lime foure pounds, which being quencht, stirre it now and then together for two daies space, that the *Capitellum* may become the stronger, then straine it through a thick & strong linnen cloth, & thus strained, put it three or foure times upon the ashes, that so it may draw more of the causticke faculties from them, then boyle it in a Barbers bason, or else an earthen one well leaded, upon a good Char-cole fire, untill it become thicke. But a great part of the secret or art consists in the manner and limit of this boyling; for this *Capitellum* becomming thicke and concreting into salt, must not bee kept so long upon the fire, untill all the moysture shall bee vanished and spent by the heate thereof: for thus also the force of the foresaid medicines, which also consists in a spirituouse substance, will bee much dissipated and weakened; therefore before it be come to extreme driness, it shall be taken off from the fire, to wit, when as yet there shall some thicke moysture remaine, which may not hinder the cauteries from being made up into a forme. The made up cauteries shall bee put up into a glasse most closely luted up or stopped, that the ayre may not dissolve them, and so they shall be laid up and kept in a dry place. Now, because the powder of Mercury is neereto cauteries in the effects and faculty thereof, which therefore is termed *Pulvis Angelicus* for the excellency; therefore I have thought good to give you the description thereof, which is thus:

The description
of Mercury,
or Angelicall
powder.

Rx. Auripigmenti citrini, floris aris, an. ℥iij. salis nitri, ℔ i ℔. alumin. rocha, ℔ ii. vitrioli rom. ℔ iij. Let them all bee powdred, and put into a Retort, having a large receiver well luted put thereto. Then set the Retort over a Fornace, and let the distillation be made first with a gentle fire, then increased by little and little, soth at the receiver may waxe a little reddish.

Rx. Argenti vivi, ℔ ℔. aqua fortis, ℔ i. ponantur in phiala, & fiat pulvis, ut sequitur.

Take a large earthen pot, whereinto put the violl or bolt head wherein the *Argentum vivum* and *Aqua fortis* are contained, setting it in ashes up to the necke thereof, then set the pot over a fornace, or upon hot coales, so that it may boyle and evapourate away the *Aqua fortis*: neither in the *interim* will the glasse bee in any danger of breaking, when all the water is vanished away, which you may know is done when as it leaves smoaking; suffer it to become cold, then take it forth of the ashes, and you shall finde calcined Mercury in the bottome, of the colour of red Lead, separated from the white, yellow or blacke excrement; for the white that concretes in the toppe is called Sublimate, which if it should remaine with the calcined Mercury, would make it more painfull in the operation. Wherefore separating this calcined Mercury, you shall make it into powder, and put it in a brasse vessell upon some coales, stirring or turning it with a *spatula* for the space of an houre or two: for thus it will lose a great part of the acrimony and biting, whence it will become lesse painfull in the operation.

CHAP. XXXIII.

Of Vesicatories.

Vesicatorie and rubrifying ointments, cataplasmes, or plasters are made of acride medicines, which have power to draw forth to the superficies of the body such humours as lye deepe, by exulcerating the skin and causing blisters. Their matter is the same with septicke medicines, as *sinapi, anacardus, cantharides, euphorb. radices scilla, bryon.* and the like, which with hony, turpentine, leaven, gum, or rosine, may be made into cataplasmes, ointments, or plasters; therefore the composure of vesicatories, or rather their consistence differs not from that of hard or soft unguents. Therefore I will give you one example or description of them, which is thus.

What vesicatorie and rubrifying medicines are.

Rx. cantharid. euphorbii, sinapi, an. 3 ℔. mellis anacardini, 3 i. modico aceti, & fermenti quod sit satis excipiantur, & fiat vesicatorium. Some of the ancients thinke it better to make up these medicines with water rather than with vinegar, because experience teacheth that vinegar abates the strength of mustard. Wee use this kinde of medicine in long diseases, when as wee cannot any thing prevaile with other remedies; especially in the head-ache, megrime, epilepsie, *sciatica*, gout, the bites and punctures of venomous creatures, pestilent carbuncles, and other inveterate and contumacious diseases.

The description of a vesicatory.

Their use.

Also we use them when as wee would restore life and strength to a dead or decayed part, for thus they are drawne backe together with the heat; for which purpose wee must make choice of more gentle vesicatories, as such which onely rubrifie, so that the part may onely become red, and not be burnt: the part must first be strongly rubbed, that the decayed and dull heat may bee rowzed and stirred up, the pores of the skin more opened, that the force of the medicine may enter the deeper into the body.

CHAP. XXXIV.

Of Collyria.



Collyrium is a medicine proper for the eyes, made of powder finely levigated and ground into the forme of *Alcohol*, as the Arabians and our Alchymists terme it: yet the word in a more generall acception is used for any liquide medicine, made with liquors and powders, and applied or used to any part. Wherefore *collyria* are of three kinds, some are moist or liquid, which are properly called *collyria*; others dry, which are of the same consistence with

What a collyrium is.

The differences of them.

Trochiscs; others have the consistence of hony, or a liniment. The liquid serve for the greater and lesser corners of the eyes; those of the consistence of hony are meet for the apple of the eye; but the dry are to be made into powder, and so blowne into the eyes: also sometimes they are to be dissolved in some juice, or other convenient liquor, that so they may be made into moist *collyria*.

Their use.

Therefore *collyria* have divers uses, and are applied to severall parts according to the intention and counsell of the Physitian: for liquid *collyria* put into the corners of the eyes doe more readily mitigate the heate of their inflammation, by reason they enter more easily by the tenuity of their substance, such things as have a more firme consistence adhere more tenaciously, and worke more certainly. Moist *collyria* are made of juices, mucilages, waters of herbes, flowers, seeds, metalline bodies, galls, and other such like medicines, which are repercussives, resolvers, detergents, anodines, and the like, according to the nature of the present disease.

Their matter.

Sometimes they are made of juices and distilled waters onely, otherwhiles powders

ders, or dry *collyria* made into powder, are mixed with them, together with the white of an egge. Powders are prescribed to $\frac{3}{4}$ ii. and liquors to $\frac{3}{4}$ iv. or $\frac{3}{4}$ v. in medicines for the eyes; but for other parts, as when it is to be injected into the urenary passage, they may be prescribed to the quantity of a pinte. Dry *Collyria* are made of powders exceeding finely beaten or ground, and incorporated with some juice, whence it is that they differ little from *Trochisces*. Wherefore the *collyrium album Rhasis* is now usually termed a *Trochisce*, and kept with them. Cathæreticke powders are not applied in the forme of a moist *collyrium*, but in the forme of a liniment, that is, incorporated with fat or oile. All these things shall be made more plaine by the following examples,

A repercussive
collyrium.
An anoding.
A detergent.

Rx. aq. plant. & rosar. an. $\frac{3}{4}$ ii. album. ovi unum, bene agitatam, misce, fiat collyrium.
℥. aq. rosar. & viol. an. $\frac{3}{4}$ iii. trochif. alb. Rhaf. cum opio, $\frac{3}{4}$ ii. fiat collyrium. Or, Rx. decoct. fœnug. $\frac{3}{4}$ iii. mucag. sem. lini, $\frac{3}{4}$ ii. sacchar. cand. $\frac{3}{4}$ i. croci, $\frac{3}{4}$ i. fiat collyr. Rx. thuris, myrrh. an. $\frac{3}{4}$ ii. tut. prepar. & antimon. lot. an. $\frac{3}{4}$ ii. cum succo chelidon. fiat collyrium in umbra sic cand. Rx. fellis perdic. aut lepor. $\frac{3}{4}$ ℥. succi fœnicul. $\frac{3}{4}$ i. sacchar. cand. $\frac{3}{4}$ ii. syrup. ros. excipiantur, fiat collyrium.

Wee use *collyria* in wounds, ulcers, fistula's, suffusions, inflammations, and other diseases of the eyes.

CHAP. XXXV.

Of Errhines and Sternutatories.

What an errhine is.

Their differences.



Errhines are medicines appointed to bee put into the nose to purge the braine of its excrementitious humours by the nostrills, or to deterge such excrements as are therein, by reason of an *ozæna*, *polypus*, or the like disease. Errhines are either liquid or dry, or else hard, and of the consistence of an emplaster. Liquid errhines, which usually are to purge the head, are made of the juices of herbes, as beets, coleworts, marjoram, pimpernell, hyssope or balme, or of their decoctions taken alone, or mixed with wine, or syrupe, as *oxymel scilliticum*, syrupe of hyssope, roses, or *mel anthosatum*: sometimes powders are mixed with these liquors, as of pepper, *euphorbium*, pellitory of Spaine, hore-hound, *nigella romana*, *castoreum*, myrrhe, white ellebore, fow-bread, and other like, in a small quantity, to wit, to $\frac{3}{4}$ i. little more or lesse according to the vehemency of the disease. Wee will make this more plaine by examples.

The forme of one.

Rx. succi beta, majoran, brasic. an. $\frac{3}{4}$ i. deparentur, & modice bulliant cum vini albi, $\frac{3}{4}$ ii. oxymelit. scillit. $\frac{3}{4}$ ℥. fiat errhinum. When as you desire to attract more powerfully from the braine, you may dissolve in errhines some purging medicines, as agaricke, *diaphanicon*, *senna*, *carthamus*, and the like: hence doth arise the distinction of errhines into such as are meet to purge phlegme, choler, and melancholy. This following example is set downe by *Rondeletius*. Rx. rad. pyreth. irid. an. $\frac{3}{4}$ i. puleg. calam. origon. an. m. i. agar. trochisc. $\frac{3}{4}$ iii. flor. anthos & stachad. an. p. i. fiat decoctio in colatur. ℥. i. dissolve mellis anthosati & scillit. an. $\frac{3}{4}$ iii. fiat caputpurgium. But it is better to this purpose to make use of purging simples, as agarick, turbeth, coloquintida, and the like, than of compositions, as *diaphanicon*, for these make the decoction more thick, and lesse fit to enter the passages of the nostrills, and the sieve-like bones, but apt rather there to cause obstruction, and intercept the freedome of respiration.

An errhine purging phlegme.

An errhine with powders.

Rx. succi beta, $\frac{3}{4}$ i. aq. salu. & beton. an. $\frac{3}{4}$ ii. ℥. pul. castor. $\frac{3}{4}$ ℥. piper. & pyreth. an. $\frac{3}{4}$ i. fiat caputpurgium. Dry errhines that are termed sternutatories, for that they cause sneefing, are made of powders onely, to which purpose the last mentioned things are used; as also aromaticke things in a small quantity, as to $\frac{3}{4}$ ii. at the most: as,

A sternutatory.

Rx. major. nigel. caryoph. Zinzib. an. $\frac{3}{4}$ i. acor. pyreth. & panis porc. an. $\frac{3}{4}$ ℥. euphorb. $\frac{3}{4}$ i. terantur diligenter, & in nares mittantur, aut insufflentur. Errhines of the consistence of emplasters, by the Latines vulgarly called *Nasalia*, are made of the described powders or gums dissolved in the juice of some of the forementioned herbes, incorporated

incorporated with turpentine and waxe, that so they may the better be made into a pyramidall forme to bee put into the nostrills. As, *R. majoran. salv. nigel. ʒ ii. pip. alb. caryoph. galang. an. ʒ i. pyreth. euphorb. an. ʒ ʒ. panis porcin. ellebor. alb. an. ʒ i. terantur, & in pulverem redigantur.* And then with turpentine and waxe as much as shall be sufficient, make them up into *Nasalia* of a pyramidall or taper fashion. Wee use errhines in inveterate diseases of the braine, as the epilepsie, feare of blindness, an apoplexie, lethargie, convulsion, the lost sense of smelling: yet we first use generall remedies and evacuations, lest by sneezing and the like concussion of the brain for the exclusion of that which is offensive thereto, there should be made a greater attraction of impurity from the subjacent parts. Liquid things must be drawn up into the nostrills warme out of the palme of the hand, to the quantity of ʒ ʒ. the mouth being in the interim filled with water, lest the attracted liquor should fall upon the pallat, and so upon the lungs: dry errhines are to be blown into the nose with a pipe or quill: solid ones must be fastned to a thred, that they may be drawn forth as need requires, when as they are put up into the nostrills. The morning (the belly being empty) is the fittest time for the use of errhines. If by their use the nose shall be troubled with an itching, the paine thereof must bee mitigated with womans milke, or oyle of violets. The use of attractive errhines is hurtfull to such as are troubled with diseases of the eyes, or ulcers in the nose, as it oft times falls out in the *Lues venerea*: wherefore in this case it will bee best to use Apophlegmatismes, which may divert the matter from the nose.

The matter of solid errhines.

Their use.

The manner of using them.

To whom they are hurtfull.

CHAP. XXXVI.

Of Apophlegmatismes, or Masticatories.



Apophlegmatismi in Greeke, and *Masticatoria* in Latine, are medicines which kept or held in the mouth and somewhat chewed, doe draw by the mouth forth of the braine excrementitious humours, especially phlegme: now they are chiefly made foure manner of waies; the first is when as the medicines are received in hony or waxe, and formed into pills, and so given to chaw upon. The second is when as the same things are bound up in a fine linnen cloath, so to be held in the mouth. The third is when as a decoction of acride medicines is kept in the mouth for a pretty space. The fourth is when as some acride medicine, or otherwise drawing flegme, as pellitory of Spaine, mastich, and the like, is taken of it selfe to the quantity of a hassell nut, and so chewed in the mouth for some space. The matter of masticatories is of the kinde of acrid medicines, as of pepper, mustard, hyssope, ginger, pellitory of Spaine, and the like; amongst which you must make choice chiefly of such as are not troublesome by any ingrate taste, that so they may be the longer kept in the mouth with the lesse offence & loathing. Yet masticatories are sometimes made of harsh or acerbe medicines, as of berberies, the stones of prunes or cherries, which held for some space in the mouth, draw no lesse store of flegme than acrid things; for the very motion and rowling them up and down the mouth attracts, because it heats, compresses, & expresses: the quantity of the medicine ought to bee from ʒ ʒ. to ʒ i ʒ.: as, *R. pyreth. staphisag. an. ʒ i ʒ. mastich. ʒ ʒ. pulverentur & involventur nodulis in masticatoria.* Or, *R. ʒinzib. sinap. an. ʒ i. euphorb. ʒ ii. piper. ʒ ʒ. excipiantur melle, & fiant pastilli pro masticatoriis.* *R. hyssop. thym. origan. salv. an. p i.* boile them in water to wash the mouth withall. Or, *R. ʒinzib. caryoph. an. ʒ i. pyreth. pip. an. ʒ ʒ. staphisagr. ʒ ii. mastiches, ʒ ʒ. excipiantur, fiant pastilli pro masticatoriis.* We use masticatories in old diseases of the braine, dimnesse of the sight, deafnesse, pustles of the head and face, and sometimes to divert the excrements which runne to the nose being ulcerated.

What an apophlegmatism is.

The differences

The use of masticatories.

Masticatories are very hurtfull to such as have their mouths or throats ulcerated, as also to them whose lungs are subject to inflammations, destillations and ulcers; for then errhines are more profitable to derive the matter of the disease by the nostrills.

To whom hurtfull.

For though the humour drawn from the braine into the mouth by the meanes of the masticatory, may bee thence cast forth by coughing and spitting, yet in the interim nature will bee so inured to that passage for the humour, so that it will run that way when as wee sleepe, and fall downe upon the parts thereunder, weake either by nature or by accident.

The time fittest for the use of Apophlegmatismes is the morning, the body being first purged: if any ingratefull taste remain in the mouth, or adhere to the tongue by using of masticatories, you shall take it away by washing the mouth with warm water, or a decoction of liquorice and barley.

CHAP. XXXVII.

Of Gargarismes.

What a gargle is.

The differences thereof.



Gargle or gargarisme is a liquid composition fit for to wash the mouth and all the parts thereof, to hinder defluxion and inflammation, to heale the ulcers which are in those parts, to assuage paine. Their composition is twofold, the first is of a decoction of roots, leaves, flowers, fruits, and seeds fit for the disease; now the decoction is to be made either in faire water alone, or with the admixture of white or red wine, or in the decoction of liquorice

and barley, or of pectorall things, as the intention of the Physitian is to repell, coole, or hinder inflammation, as in the tooth-ache caused by matter which is yet in motion; to discusse, as in the tooth-ache already at the height; or to cleanse, as in the ulcers of the mouth; or to dry and binde, as when it is fit to heale the ulcers already cleansed.

Their matter.

The other way of making of gargarismes is without decoction, which is, when as wee make them either of distilled waters onely, or by mixing them with syrups, mucilages, milke, the whey of Goats milke carefully strained. There are mixed sometimes with a decoction, distilled waters and mucilages, *mel rosatum*, *oxymel simplex*, *diamoron*, *dianucum*, *hierapicra*, *oxysacchara*, *syrup. de rosis siccis*, *syrupus acetosus*, and other things, as the present case shall seem to require, as *alome*, *balanitia*, *myrrhe*, *olibanum*, ginger, pepper, cinamon, dry roses, and many such things, even so that oft times there enter into gargles such medicines as have force to draw from the braine, as pellitory of Spaine, carthamus, turbith, and such things as have no bitternesse, which is the cause that neither agrick nor coloquintida ought to enter into gargarismes.

The quantity of liquor for a gargarisme is commonly from ℥β. to ℥i. mixe therewith some ℥ii. of syrups, but put in powders sparingly, as some ℥iii. Alome may sometimes bee put in to ℥vi. let mucilages be extracted out of ℥ii. of seeds: let these serve for some examples.

An astringent gargle.
An anodine gargle.

Rx. *plant. polygon. oxalidis*, an. m i. *rosar. rub.* p β. *hordei*, p i. fiat decoctio ad ℥ viii. in qua dissolve syrupi myrtillorum, ℥ vi. *dianucum*, ℥ β. fiat gargarisma. Or, Rx. *cham. melil. aneth. an.* p i. *ros. rub.* p β. *passul. mund.* & *ficuum*, an. p iii. decoquantur in aquis partibus vini & aqua, ad ℥ vi. addendo mucag. sem. lini, & fenugr. an. ℥ ii. fiat gargarisma.

A deterfive.

Or else, Rx. *aq. plantag. ligust. absinth. an.* ℥ ii. *mellis rosati colati*, ℥ vi. *syrupi rosar. siccar.* & *de absinth. an.* ℥ vi. fiat gargarisma.

We use gargles in the morning fasting after generall purgations, they are sometimes taken or used cold, when as a maligne, acride, and thinne humour falls downe, sometimes warme, but let these things bee done according as the Physitian shall advise.

CHAP. XXXVIII.

Of Dentifrices.

Dentifrices are medicines prepared and serving divers waies for to cleanse, whiten, and fasten the teeth; for from their use they take their name. Of these some are dry, othersome moist: of the dry some have the forme of opiats, others of pouders grossely beaten, but the moist are commonly made by distillation: the matter of dry dentifrices is taken from detergent and drying things, such as are corall white and red, harts-horne, scuttle bones, alome, crystall,

What a dentifrice is.

The differences

The matter whereof they consist.

pumice, sal nitre, myrrhe, frankiacense, *balauftia*, acornes, all sorts of shels of fishes: all these are to bee made into powder either by burning, or without it, for scuttle bones burnt cast forth a stinking and unpleasant smell. To these for smell sake are added certaine aromaticke things, as cinamon, cloves, nutmegs, and the like: such powders if mixed with some syrupe, as *oxymel scilliticum*, or with mucilage of gum arabicke and tragacanth, will become opiates, to be made into a pyramidall forme of some fingers length, round or square, and sharpe pointed, that dryed they may serve for dentifrices.

Sometimes emollient roots are boiled with salt or alome, that dryed againe they may be used for dentifrices: moist ones are made of drying herbs, distilled together with drying and astringent things.

All the differences shall appeare by the following examples. *Re. lapidis spong. pumicis, & cornu cervi ust. an. 3 ii. coral. rub. & crystal. an. 3 i. alum. & sal. ust. an. 3 i. B. cinamom. & caryoph. rosar. rub. pulver. an. 3 ii. fiat pulvis pro dentifricio. Or, 4. ofsis sapia, 3 B. mastiches, coralli rubri usti, an. 3 ii. cornu cervi usti, 3 i. B. aluminis, carbonis, rorismarini, an. 3 i. cinamomi, 3 ii. fiat pulvis pro dentifricio. Or, 4. ofsis sapia, alum. & salis usti, an. 3 i. crystalli, glandium, myrrha, thuris, an. 3 ii. corticis granatorum, macis, cinamomi, an. 3 i. fiat pulvis qui excipiat mucagine gummi tragacanth. & formetur pyramides longa, siccand. pro dentifricio. Or, Re. rad. malva junioris, & bis malva, an. 3 ii. coquantur in aqua salsa aut aluminosa, deinde siccentur in furno pro dentifricio. Re. salis, 3 vi. alumin. 3 iii. thuris, mastiches, sang. dracon. an. 3 B. aqua ros. 3 vi. distillentur in alembico vitreo pro dentifricio.*

A powder for a Dentifrice,

Dentifrices are not onely good to polish, cleanse, and strengthen the teeth; but wee also oft times use them for the tooth-ache, the diseases of the mouth, and ulcers of the gummes. You may use them in the morning, before and after meat.

Their use

The antients, of lentiske wood made themselves tooth-picks, and such devices to strengthen their loose teeth, which also at this day is in use with those of *Languedock*, with whom this wood is plentifull, so that it may be brought thence for the use of Noblemen and Gentlemen; myrrhe may also serve for this same use, and any other astringent wood.

Our people commonly use the stalks of fennell, yet have they no faculty to fasten the teeth, but their smell is gratefull.

CHAP. XXXIX.

Of Bagges or Quilts.

Hysitians terme a bagge or *sacculus*, the composition or mixture of dry and powdred medicines put in a bagge, therefore it is as it were a dry fomentation. Their differences are not drawne from any other thing than from the variety of the parts whereto they are applied: such as are for the head must be made into the fashion of a cap, those which bee for the whole ventricle must be made into the forme of a citherne; those for the spleene, like to an oxes tongue: lastly, such as are for the li-

What a bag or quilt is.

Their differences

ver, heart and other parts must be made according to the figure of those parts. Their matter is usually taken from whole seeds tryed in a frying-pan, or made into powder; there are sometimes added roots, flowers, fruits, rinds, cordiall powders, and other dry medicines, which may bee easily brought into powder, and conduce to the grieved parts; the quantity is different according to the magnitude of the affected parts; In the books of practisers it is commonly found prescribed from $\text{ʒ} \text{iii.}$ to $\text{ʒ} \text{vi.}$ sometimes flowers, and dry herbs are prescribed by handfulls and pugils: and here there is need of an artificiall conjecture to conceive and appoint a fit quantity of powders: but let us give you some examples.

A quilt for the
stomacke.

\mathcal{R} . *rosar. rub.* $\text{ʒ} \text{i.}$ *mastich.* $\text{ʒ} \text{ʒ.}$ *coralli rub.* $\text{ʒ} \text{iii.}$ *sem. anisi,* & *fanic. an.* $\text{ʒ} \text{ii.}$ *nucis moschat.* $\text{ʒ} \text{i.}$ *summitat. absinth. & menth. an.* $\text{ʒ} \text{i.}$ *tritris omnibus,* fiat *sacculus confusus & compunctus pro ventriculo.*

A cap for a cold
head.

\mathcal{R} . *furfuris macri,* $\text{ʒ} \text{i.}$ *milii,* $\text{ʒ} \text{i.}$ *salis,* $\text{ʒ} \text{ii.}$ *rosar. rub. flor. rorismarini, stachados, caryoph. an.* $\text{ʒ} \text{ii.}$ *fol. beton. & salv. an.* $\text{ʒ} \text{iii.}$ *tritris omnibus* fiat *cucupha, intersuta & calefacta fumo thuris, & sandaracha exustorum, capiti apponatur.*

A quilt for the
heart.

\mathcal{R} . *flor. borag. buglos. & violar. an.* $\text{ʒ} \text{ii.}$ *cortic. citri sicci, macis, ligni aloes, rasar. eboris, an.* $\text{ʒ} \text{i.}$ *osis de corde cervi, croci, an.* $\text{ʒ} \text{ii.}$ *fol. melis. m. ʒ. pulveris diambra,* $\text{ʒ} \text{ʒ.}$ *contritis omnibus* fiat *sacculus e serico pro corde, irrorandus aqua scabiosa.*

Their use.

Wee use bagges for the strengthening of the noble parts, as the braine, heart, liver, as also for those lesse noble, as the stomacke, spleene, breast; lastly for discussing flatulencies in what part soever, as in the collicke, and in a bastard pleurisie proceeding from flatulencies. The powders must bee strawed upon carded bombast, that they runne not together, and then they must bee sewed up or quilted in a bagge of linnen or taffaty.

Wee often times moisten these bagges in wine or distilled water, and sometimes not with the substance thereof, but by the vapour only of such liquors put into a hot dish: thus oft times the bagges are heated by the vapour onely, and oft times at the fire in a dish by often turning them. These, if intended for the heart, ought to bee of crimson or skarlet silke, because the skarlet berry, called by the Arabians *Kermes*, is said to refresh and recreate the heart. Certainly they must alwaies be made of some fine thing, whether it be linnen or silke.

CHAP. XL.

Of Fumigations.

What a fumiga-
tion is.

Their differen-
ces and matter.



Suffitus or fumigation is an evaporation of medicines having some viscos and fatty moisture: of fumigations some are dry, other some moist, the dry have the form of trochiscs or pills: their matter ought to be fatty and viscos, so that it may send forth a smoake by being burnt: such are *ladanum*, *myrrhe*, *masticke*, *pitch*, *waxe*, *rosine*, *turpentine*, *castoreum*, *styrax*, *frankincense*, *olibanum*, and other gummes, which may bee mixed with convenient powders: for they yeeld them a body and firme consistence; the fumigations that are made of powders only, yeeld neither so strong nor long a fume.

A cephalicke
fume.

The quantity of the powders must bee from $\text{ʒ} \text{ʒ.}$ to $\text{ʒ} \text{i.}$ but the gummes to $\text{ʒ} \text{ii.}$ as, \mathcal{R} . *sandaracha, mastiches, rosar. an.* $\text{ʒ} \text{i.}$ *beniointi, galang. an.* $\text{ʒ} \text{iii.}$ *terebinthina excipiantur, & fiant trochisci, quibus incensis suffumigentur tegumenta capitis.* \mathcal{R} . *marcasta,* $\text{ʒ} \text{ii.}$ *bdellii, myrrhe, styracis, an.* $\text{ʒ} \text{i.}$ β . *cera flava, & terebinth. quod sufficit, fiant formula pro suffumigio.* \mathcal{R} . *cinnabaris, ʒii. styracis & benioini, an.* $\text{ʒ} \text{ii.}$ *cum terebinth. fiant trochisci pro suffumigio per embotum.*

For the hard-
nesse of the si-
newes.

For the reliques
of the *Lues ven-
erea*

Wee use fumigations in great obstructions of the braine, ulcers of the lungs, the *asthma*, an old cough, paines of the sides, wombe, and the diseases of some other parts; sometimes the whole body is fumigated, as in the cure of the *Lues venerea* to procure sweat; sometimes onely some one part whereto some reliques of the *Lues* adheres;

adheres; such fumigations are made of *cinnabaris*, wherein there is much *hydrargyrum*. The fume must be received by a funnell, that so it may not bee dispersed, but may all be carried unto the part affected, as is usually done in the affects of the womb and eares.

The manner of using them.

In fumigations for the braine and chest, the vapour would be received with open mouth; which thence may passe by the weazon into the chest, by the palate and nostrils into the braine: but in the interim let the head bee veiled, that none of the vapour may fly away. Moist fumigations are made somewhiles of the decoction of herbes, otherwhiles of some one simple medicine boiled in oile, sometimes a hot fire-stone is quencht in vinegar, wine, *aqua vita*, or the like liquor, so to raise a humide vapour. We oft times use this kinde of fumigation in overcoming scirrhus affects, when as we would cut, discusse, penetrate deep, and dry: take this as an example thereof.

℞. laterem unum satis crassum, aut marchasitam ponderis ℥i. heat it red hot, and then let it bee quencht in sharpe vinegar, powring thereon in the meane while a little *aqua vita*, make a fumigation for the grieved part.

The manner of a moist fumigation.

Fumes of the decoction of herbes doe very little differ from fomentations properly so called; for they differ not in the manner of their composure, but onely in the application to the affected parts: therefore let this be an example of a humide fumigation.

℞. absinth. salv. rut. origan. an. p i. rad. bryon. & asar. an. 3 β. sem. sinap. & cumin. an. 3 ii. decoquantur in duabus partibus aqua, & una vini pro suffitu auris cum emboto: A moist fume for the eares. and oft times such fumigations are made for the whole body, whereof we shall treat hereafter.

CHAP. XLI.

Of a particular, or halfe-Bath.



Semicupium or halfe-bath is a bath for the one halfe of the body, that is, for the parts from the belly downewards; it is called also an *inseffio*, because the patient sitteth to bathe in the decoction of herbes: in which forme and respect a *semicupium* differs from a fomentation; for it is composed of the same matter, to wit, a decoction of herbes, roots, seedes, fruits, but in this the quantity of the decoction is the greater, as wee shall teach by the

The matter.

following example.

℞. malv. bis malv. cum toto, an. m i β. beton. saxifrag. pariet. an. m i. sem. melon. m i. lii solis, alkekengi, an. 3 iii. cicer. rub. p ii. rad. apii, graminis, feniculi, eryngii, an. 3 i. decoquantur in sufficienti quantitate aqua pro inseffu. A halfe bath for the stone in the kidneies.

Wee use these halfe-baths in affects of the kidneies, bladder, wombe, fundament, and lower belly, or otherwise when as the patient by reason of weaknesse and feare of dissipating the spirits, cannot suffer or away with a whole bath. The manner of using it is thus; fill some bagges with the boiled herbes, or other parts of plants, and cause the patient to sit upon them; yet in the interim keepe the vapours from the head, lest they should offend it, by casting over it a linnen cloath, or else let him not enter thereinto untill the vapour be exhaled.

The use.

The manner of using it.

C H A P. XLII.

Of Bathes.

The faculties
of Bathes.

Their differen-
ces.

Naturall Bathes.

Bathes are nothing else than as it were a fomentation of the whole body, both for preserving health, and the cure of diseases: this is a very commodious form of medicine, and among other externall medicines much celebrated by the Greeke, Arabian, and Latine Physitians. For a bath, besides that it digests the acrid humors, and sooty excrements lying under the skin, mitigates paines and wearinesse, and corrects all excesse of distemper: moreover, in the cure of feavers, and many other contumacious and inveterate diseases it is the chiefe and last remedy, and as it were the refuge of health, stored with pleasing delight. Bathes are of two sorts, some naturall, others artificiall: naturall, are those which of their owne accord, without the operation or help of art, prevaile or excell in any medicinall quality. For the water which of it selfe is devoide of all quality that is perceivable by the taste, if it chance to be strained through the veines of metals, it furnishes and impregnates it selfe with their qualities and effects: hence it is that all such water excels in a drying faculty, sometimes with cooling and astringent, and otherwhiles with heate and a dissolving quality. The bathes whose waters being hot or warm, doe boile up, take their heat from the cavities of the earth and mines filled with fire, which thing is of much admiration whence this fire should arise in subterrene places, what may kindle it, what feed or nourish it for so many yeeres, and keep it from being extinct. Some Philosophers would have it kindled by the beames of the sunne, others by the force of lightnings penetrating the bowels of the earth, others by the violence of the aire vehemently or violently agitated, no otherwise than fire is strucke by the collision of a flint and Steele. Yet it is better to referre the cause of so great an effect unto God the maker of the Universe, whose providence piercing every way into all parts of the World, enters and governes the secret parts and passages thereof. Notwithstanding they seeme to have come neerest the truth, who referre the cause of heat in waters unto the store of brimstone contained in certaine places of the earth, because amongst all minerals it hath most fire and matter fittest for the nourishing thereof. Therefore to it they attribute the flames of fire which the Sicilian mountaine *Aetna* continually sends forth. Hence also it is that the most part of such waters smell of Sulphur, yet others smell of Alom, others of nitre, others of Tarre, and some of Coprosse.

How to know
whence the
Bathes have
their efficacy.

Now you may know from the admixture of what metalline bodies the waters acquire their faculties by their taste, sent, colour, mud, which adheres to the channels through which the water runnes, as also by an artificiall separation of the more terrestriall parts from the more subtile. For the earthy drosse which subsides or remains by the boiling of such waters, will retain the faculties and substance of Brimstone, Alume, and the like minerals: besides also, by the effects and the cure of these or these diseases you may also gather of what nature they are. Wherefore we will describe each of these kinds of waters by their effects, beginning first with the sulphureous.

The condition
of naturall sul-
phureous wa-
ters.

Sulphureous waters powerfully heat, dry, resolve, open, and draw from the center unto the surface of the body; they cleanse the skin troubled with scabs & tetter, they cease the itching of ulcers, and digest & exhaust the causes of the gout, they help paines of the collicke and hardened spleenes. But they are not good to be drunk, not onely by reason of their ungratefull smell and taste, but also by reason of the maliciousness of their substance, offensive to the inner parts of the body, but chiefly to the liver.

Of aluminous
waters.

Aluminous waters taste very astringently, therefore they dry powerfully, they have no such manifest heat, yet drunke, they loose the belly: I believe by reason of their heat and nitrous quality they cleanse and stay defluxions, and the courses flowing too immoderately; they also are good against the tooth-ache, eating ulcers, and the hidden abscesses of the other parts of the mouth.

Salt

Salt and nitrous waters shew themselves sufficiently by their heat: they heat, dry, bind, cleanse, discusse, attenuate, resist putrefaction, take away the blackenesse coming of bruises, heale scabby and maligne ulcers, and helpe all oedematous tumors. Of salt and nitrous.

Bituminous waters heate, digest, and by long continuance soften the hardened sinewes; they are different according to the various conditions of the bitumen that they wash, and partake of the qualities thereof. Of bituminous.

Brasen waters, that is, such as retain the qualities of brasse, heat, dry, cleanse, digest, cut, binde, are good against eating ulcers, fistula's, the hardnesse of the eyelids, and they waste and eat away the fleshy excrescences of the nose and fundament. Of brasen.

Iron waters coole, dry, and bind powerfully, therefore they helpe abscesses, hardened milts, the weaknesse of the stomacke and ventricle, the involuntary shedding of the urine, and the too much flowing termes, as also the hot distemper of the liver and kidneyes. Some such are in the Lucan territory in *Italy*. Of iron.

Leaden waters refrigerate, dry, and performe such other operations as lead doth: the like may bee said of those waters that flow by chalke, plaster, and other such minerals, as which all of them take and performe the qualities of the bodies by which they passe. Of leaden.

Hot waters or bathes helpe cold and moist diseases, as the Palsie, convulsion, the stiffnesse and attraction of the nerves, trembling palpitations, cold distillations upon the joints, the inflation of the members by a dropsie, the jaundise by obstruction of a grosse, tough, and cold humour, the paines of the sides, collick, and kidneyes, barrennesse in women, the suppression of their courses, the suffocation of the womb, causelesse wearinesse, those diseases that spoile the skinne, as tertars, the leprosie of both sorts, the scabbe, and other diseases arising from a grosse, cold and obstructing humour, for they provoke sweats. Of hot baths.

Yet such must shunne them as are of a cholericke nature, and have a hot liver, for they would cause a *cachexia* and dropsie by overheating the liver. Cold waters or baths heale the hot distemper of the whole body & each of the parts thereof, and they are more frequently taken inwardly than applied outwardly; they help the laxnesse of the bowels, as the resolution of the retentive faculty of the stomacke, entralls, kidneyes, bladder, and they also adde strength to them. Wherefore they both temper the heat of the liver, and also strengthen it, they stay the *Diarrhaea*, *Dysentery*, Courses, involuntary shedding of urine, the *Gonorrhoea*, Sweats, and Bleedings. In this kinde are chiefly commendable the waters of the Spaw in the country of *Liege*, which inwardly and outwardly have almost the same faculty, and bring much benefit without any inconvenience, as those that are commonly used in the drinks and broaths of the inhabitants. To whom hurtfull.
The faculties of cold baths.

In imitation of naturall baths, there may in want of them be made artificiall ones, by the infusing and mixing the powders of the formerly described minerals; as, Brimstone, Alum, Nitre, *Bitumen*: also you may many times quench in common or raine water, iron, brasse, silver and gold heated red hot, and so give them to be drunk by the patient, for such waters doe oft times retain the qualities and faculties of the metals quenched in them, as you may perceive by the happy successe of such as have used them against the *Dysentery*. Of artificiall baths.

Besides these there are also other bathes made by art of simple water, sometimes without the admixture of any other thing, but otherwhiles with medicinall things mixed therewith, and boiled therein. But after what manner soever these bee made, they ought to be warme, for warm water humects, relaxes, mollifies the solid parts, if at any time they bee too dry, hard, and tense; by the ascititious heat it opens the pores of the skinne, digests, attracts, and discusses fuliginous and acrid excrements remaining betweene the flesh and the skin. It is good against sun-burning and wearinesse, whereby the similar parts are dried more than is fit. To conclude, whether we be too hot or cold, or too dry, or be nauseous, we find manifest profit by baths made of sweet or warme water, as those that may supply the defect of frictions and exercises: for they bring the body to a mediocrity of temper, they encrease and strengthen the native colour, and by procuring sweat discusse flatulencies: therefore they are very

Why we put
oile into baths.

very usefull in hecticke feavers, and in the declension of all feavers, and against raving and talking idely, for they procure sleep. But because water alone cannot long adhere to the body, let oile bee mixed or put in them, which may hold in the water, and keep it longer to the skinne.

These bathes are good against the inflammations of the lungs and sides, for they mitigate pain, and help forward that which is suppurated to exclusion, when as generall remedies according to art have preceded, for otherwise they will cause a greater defluxion on the afflicted parts: for a bath (in *Galens* opinion) is profitably used to diseases when as the morbidick matter is concocted. To this purpose is chosen rain water, then river water, so that it be not muddy, and then fountaine water; the water of standing lakes and fennes is not approved of, for it is fit that the water which is made choice of for a bath of sweet water, should bee light and of subtile parts, for baths of waters which are more than moderately hot or cold yeeld no such commodity; but verily they hurt in this, that they shut up or close the pores of the body, and keepe in the fuliginous excrements under the skinne; other bathes of sweet or fresh water consist of the same matter as fomentations doe, whence it is that some of them relaxe, others mitigate paine, others cleanse, and others some procure the courses, that is compounded of a decoction of ingredients or plants having such operations. To these there is sometimes added wine, other whiles oile, sometimes fresh butter or milke, as when the urine is stopped, when nephriticke paines are violent, when the nerves are contracted, when the habite of the body wastes and wrinkles with a hecticke drynesse, for this corrugation is amended by relaxing things, but it is watred, and as it were fatted by humecting things, which may penetrate & transfuse the oily or fatty humidity into the body thus rarified and opened by the warmnesse of a bath.

Why we must
not continue in
the bath till we
sweat.

Anodine bathes are made of a decoction of medicines of a middle nature, such as are temperate and relaxing things, with which wee may also sometimes mixe resolving things; they are boiled in water and wine, especially in paines of the collicke proceeding from vitreous phlegme, or grosse and thicke flatulencies contained or shut up in the belly, kidneyes, or wombe. In such bathes it is not fit to sweat, but onely to sit in them so long untill the bitternesse of the paine be asswaged or mitigated, lest the powers weakened by paine, should bee more resolved by the breaking forth of sweat: emollients are sometimes mixed with gentle detergents, when as the skin is rough and cold, or when the scales or crust of scabs is more hard than usuall, then in conclusion we must come to strong deterfives and driers, lastly to drying and somewhat astringive medicines, so to strengthen the skinne, that it may not yeeld it selfe so easie and open to receive defluxions. By giving you one example the whole manner of prescribing a bath may appeare.

A mollifying &
anodine bath.

Rx. rad. lilior. albor. bismalv. an. lb ii. malv. pariet. violar. an. m ss. sem. lini, fenug. bismalv. an. lb i. flor. cham. melil. aneth. an. p vi. fiat decoctio in sufficienti aqua quantitate, cui permiscito olei liliorum & lini, ana, lb ii. fiat balneum in quo diutius natet aeger.

Caution to be
observed in the
use of baths.

Bathes though noble remedies approved by use and reason, yet unlesse they bee fitly and discreetly used in time, plenty, and quality, they doe much harme; for they cause shakings and chilnesse, paines, density of the skinne, or too much rarefaction thereof, and oft times a resolution of all the faculties. Wherefore a man must bee mindfull of these cautions before he enter a bath: first, that there be no weaknesse of any noble and principall bowell, for the weak parts easily receive the humors which the bath hath diffused and rarified, the waies lying open which tend from the whole body to the principall parts. Neither must there be any plenty of crude humours in the first region, for so they should be attracted and diffused over all the body: therefore it is not onely fit that generall purgations should precede, but also particular by the belly and urine: besides, the patient should bee strong that can fasting endure a bath as long as it is needfull. Lastly, the bath ought to be in a warme and silent place, lest any cold aire by its blowing, or the water by its cold appulse, cause a shivering or shaking of the body, whence a feaver may ensue.

The morning is a fit time for bathing, the stomacke being fasting and empty, or
fixe

six hours after meat, if it be requisite that the patient should bath twice a day, otherwise the meat yet crude would bee snatched by the heate of the bath out of the stomacke into the veines and habite of the body. Many, of all the seasons of the yeere make choice of the spring and end of summer, and in these times they chuse a cleare day, neither troubled with stormy windes, nor too sharpe an aire. As long as the patient is in the bath, it is fit that he take no meate, unlesse peradventure to comfort him he take a little bread moistened in wine, or the juice of an orange, or some damaske prunes to quench his thirst: his strength will shew how long it is fit that he should stay in, for he must not stay there to the resolution of his powers, for in baths the humide and spirituous substance is much dissipated. Comming forth of the bath, they must presently get them to bed, and be well covered, that by sweating, the excrements, drawne unto the skinne by the heat of the bath, may breake out: the sweat cleansed, let him use gentle frictions, or walking, then let him feede upon meat of good juice and easie digestion, by reason that the stomacke cannot but be weakened in some sort by the bath.

The fittest time
for bathing.

How to order
the patient
comming forth
of the bath.

That quantity of meat is judged moderate, the weight whereof shall not oppresse the stomacke: venery after bathing must not be used, because to the resolution of the spirits by the bath, it addes another new cause of further spending or dissipating them. Some with those that use the bath by reason of some contraction, paine, or other affects of the nerves, presently after bathing, to dawbe or besmeare the affected nervous parts with the clay or mudde of the bathe, that by making it up as it were in this paste, the vertue of the bath may worke more effectually, and may more throughly enter into the affected part.

These cautions being diligently observed, there is no doubt but the profit by bathes will be great & wonderfull: the same things are to be observed in the use of Stoves or Hot-houses, for the use and effect of baths and hot-houses is almost the same, which the antients therefore used by turne, so that comming forth of the bath they entred a stove, and called it also by the name of a bath, as you may garher from sundry places of *Galen* in his *Methodus med.* wherefore I thinke it fit in the next to speake of them.

CHAP. XLIII.

Of Stoves or Hot-houses.



Stoves are either dry or moist: Dry, by raising a hot and dry aëry exhalation, so to imprint their faculties in the body, that it thereby waxeth hot, and the pores being opened, runnes down with sweat.

The differences
of Stoves.

There are sundry waies to raise such an exhalation: at *Paris*, and wheresoever there are stoves or publicke hot-houses, they are raised by a cleere fire put under a vaulted fornace, whence it being presently diffused, heats the whole roome. Yet every one may

How made

make himselfe such a stove as he shall judge best and fittest.

Also you may put red hot cogles or bricks into a tubbe, having first laid the bottome thereof with bricke or iron plates, and so set a seat in the midst thereof, wherein the patient sitting, well covered with a canopy drawne over him, may receive the exhalation arising from the stones that are about him, & so have the benefit sweating: but in this case we must oft looke to and see the patient, for it sometimes happens that some, neglected by their keepers otherwise employed, becoming faint, and their sense failing them by the dissipation of their spirits by the force of the hot exhalation, have sunke down with all their bodies upon the stones lying under them, and so have beene carried halfe dead and burnt into their beds. Some also take the benefit of sweating in a fornace or oven, as soone as bread is drawne out thereof. But I doe not much approve of this kinde of sweating, because the patient cannot as he will, much lesse as he pleaseth, lye or turne himselfe therein.

Yyyy

Humide

A vaporous
stove or bath.

Humid stoves or sudatories are those wherein sweat is caused by a vapour or moist heat: this vapour must be raised from a decoction of roots, leaves, flowers, and seeds, which are thought fit for this purpose; the decoction is to be made in water or wine, or both together. Therefore let them all be put into a great vessell well luted, from the top of whose cover iron or tinne pipes may come into the bathing tub standing neere thereto, betweene the two bottomes thereof, by meanes whereof the hot vapour may enter thereinto, and diffuse it selfe therein. Now it is fit the bathing tub should bee furnished with a double bottome, the one below and whole, the other somewhat higher and perforated with many holes, whereupon the patient sitting may receive a sudorifick vapour over all his body: now this vapour, if at any time it become too hot, must bee tempered by opening the hole, which must for the same purpose be made in the top of the pipe, that so it may be opened and shut at pleasure. In the interim the tub shall bee closely covered wherein the patient sits, hee putting forth onely his head, that so hee may draw in the coole aire. In defect of such pipes, the herbs shall bee boiled by themselves in a caldron or kettle, and this shall bee set thus hot into the bathing tubbe at the patients feet, and so by casting into it heated stones, a great and sudorifick vapour shall be raised.

*The delineation of a bathing Tubbe, having a double bottome,
with a vessell neare thereto, with pipes coming
therefrom, and entering betweene the two
bottomes of the Tubbe.*



CHAP. XLIV.

*Of Fuci, that is, washes, and such things for the smoothing
and beautifying of the skinne.*

His following discourse is not intended for those women which addicted to filthy lust, seek to beautifie their faces, as baits and allurements to filthy pleasures: but it is intended for those onely, which the better to restrain the wandering lusts of their husbands, may endeavour by art to take away those spots and deformities which have happened to fall on their faces either by accident or age.

As the colour of
the skin is, such
is the humour
that is thereun-
der.

The colour that appears in the face, either laudible or illaudible, abundantly shewes the temper both of the body, as also of those humours that have the chiefe dominion therein: for every humour dyes the skinne of the whole body, but chiefly of the face, with the colour thereof: for choler bearing sway in the body, the face lookes yellowish; phlegme ruling, it lookes whitish or pale; if melancholy exceed, then blackish or swart; but if blood have the dominion, the colour is fresh and red. Yet there are other things happening externally which change the native colour of the

the face, as sun-burning, cold, pleasure, sorrow, feare, watching, fasting, paine, old diseases, the corruption of meats and drinks : for the flourishing colour of the cheeks is not onely extinguished by the too immoderate use of vinegar, but by the drinking of corrupt waters the face becomes swolne and pale.

On the contrary, laudible meats and drinks make the body to bee well coloured and comely, for that they yeeld good juice, and consequently a good habite. Therefore if the spots of the face proceed from the plenitude and ill disposition of humours, the body shall bee evacuated by blood-letting : if from the infirmity of any principall bowell, that must first of all bee strengthened ; but the care of all these things belongs to the Physitian : we here onely seek after particular remedies which may smooth the face, and take away the spots, and other defects thereof, and give it a laudible colour.

First the face shall be washed with the water of lilly flowers, of bean flowers, water lillies, of distilled milke, or else with the water wherein some barley or starch hath bin steeped. The dried face shall be anointed with the ointments presently to be described ; for such washing cleanseth and prepareth the face to receive the force of the ointments, no otherwise than an alumed lye prepares the haire to drinke up and retaine the colour that wee desire. Therefore the face being thus cleansed and prepared, you may use the following medicines, as those that have a faculty to beautifie, extend, and smooth the skinne : as,

Rx. gum. tragacanth. conquass. ʒ ii. distemperentur in vase vitreo cum lb ii. aqua communis, sic gummi dissolvuntur, inde albescet aqua. Or else, Rx. lithargyri auri, ʒ ii. cerus. & salis com. an. ʒ ss. aceti, aqua plantag. an. ʒ ii. caphur. ʒ β. macerentur lithargyros & cerusa in aceto scorsim per tres aut quatuor horas, sal vero & camphora in aqua quam instinto tuo aptam delegeris : then filter them both severall, and mixe them together being so filtered, when as you would use them.

Waters where
with to wash
the face.

Compound li-
quors where-
with to wash
the face.
Virgins milke

Rx. lactis vaccini, lb ii. aranciorum & limon. an. nu. iv. sacchari albißimi, & alum. roch. an. ʒ i. distillantur omnia simul : let the lemons and oranges bee cut into slices, and then be infused in milk, adding thereto the sugar and alome; then let the mall be distilled together in balneo Maria ; the water that comes thereof will make the face smooth and lovely. Therefore about bed time it will be good to cover the face with linnen cloaths dipped therein. A water also distilled of snails gathered in a vineyard, juice of lemons, the flowres of white mullaine, mixed together in equall proportion, with a like quantity of the liquor contained in the bladders of elme leaves, is very good for the same purpose. Also this,

Rx. micapanis albi, lb iv. flor. fabar. rosar. alb. flor. nenuph. lilior. & ireos, an. lb ii. lactis vaccini, lb vi. ova. nu. viii. aceti opt. lb i. distillantur omnia simul in alembico vitreo, & fiat aqua ad faciei & manuum lotionem. Or, Rx. olei de tartaro, ʒ iii. mucag. sem. psilii, ʒ i. cerus. in oleo ros. dissolut. ʒ i ss. borac. sal. gem. an. ʒ i. fiat linimentum pro facie. Or, Rx. caponem vivum, & casum ex lacte caprino recenter confectum, limon. nu. iv. ovor. nu. vi. cerus. lot. in aq. rosar. ʒ ii. boracis, ʒ i ss. camph. ʒ ii. aq. flor. fabar. lb iv. fiat omnium infusio per xxiv. horas, postea distillantur in alembico vitreo.

There is a most excellent fucus made of the marrow of sheeps bones, which smooths the roughnesse of the skinne, beautifies the face ; now it must be thus extracted. Take the bones, severed from the flesh by boyling, beat them, and so boyle them in water, when they are well boyled, take them from the fire, and when the water is cold, gather the fat that swimmes upon it, and therewith anoint your face when as you goe to bed, and wash it in the morning with the formerly prescribed water.

The marrow of
sheeps bones
good to smooth
the face.

Rx. salis ceruss. ʒ ii. ung. citrin. vel spermat. ceti, ʒ i. malaxentur simul, & fiat linimentum, addendo olei ovor. ʒ ii. The Sal cerussa is thus made, grinde Cerusse into very fine powder, and infuse lb i. thereof in a pottle of distilled vinegar for foure or five dayes, then filter it, then set that you have filtered in a glased earthen vessell over a gentle fire untill it concrete into salt, just as you doe the capitellum in making of Cauteries.

How to make
Salcerussa.

Rx. excrementi lacert. ossis sepia, tartari, vini albi, rasur. corn. cerv. farin. oriz. an. partes aequales, fiat pulvis, infundatur in aqua distillata amygdalarum dulcium, limacum vinealium,

vinealium, flor. nenuph. huic addito mellis albi par pondus: let them be all incorporated in a marble mortar, and kept in a glasse or silver vessell, and at night anoint the face herewith; it wonderfully prevails against the rednesse of the face, if after the anointing it you shall cover the face with a linnen cloath moistened in the formerly described water.

Rx. sublim. 3 i. argent. viv. saliv. extinct. 3 ii. margarit. non perforat. 3 i. caph. 3 iß. incorporatentur simul in mortario marmoreo, cum pistillo ligneo, per tres horas ducantur & fricentur, reducanturque in tenuissimum pulverem, confectus pulvis abluatur aqua myrti & desiccetur, serveturq; ad usum, adde foliorum auri & argenti, nu. x. When as you would use this powder, put into the palme of your hand a little oyle of mastick, or of sweet almonds, then presently in that oyle dissolve a little of the described powder, and so work it into an ointment, wherewith let the face be anointed at bed-time: but it is fit first to wash the face with the formerly described waters, and againe in the morning when you rise.

How to paint
the face.

When the face is freed from wrinkles and spots, then may you paint the cheekes with a rose and flourishing colour; for of the commixture of white and red ariseth a native and beautifull colour: for this purpose take as much as you shall thinke fit of brissill, and alchunet; steep them in alume water, and therewith touch the cheeks and lips, and so suffer it to dry in: there is also spanish red made for this purpose; others rub the mentioned parts with a sheeps skinne died red: moreover the friction that is made by the hand onely, causeth a pleasing rednesse in the face, by drawing thither the blood and spirits.

CHAP. XLV.

Of the Gutta Rosacea, or a fiery face.



Histreatise of *Fuci* puts me in minde to say something in this place of helping the preternaturall rednesse which possesseth the nose and cheekes, and oft times all the face besides, one while with a tumour, other whiles without, sometimes with pustles and scabs, by reason of the admixtion of a nitrous and adust humor. Practitioners have termed it *Gutta rosacea*. This shewes both more and more ugly in winter than in summer, because the cold closeth the pores of the skinne, so that the matter contained thereunder is pent up for want of transpiration, whence it becomes acrid and biting, so that as it were boiling up, it lifts or raiseth the skinne into pustles and scabs; it is a contumacious disease, and oft times not to be helped by medicine.

Why worse in
winter than in
summer.

Diet.

For the generall method of curing this disease, it is fit that the patient abstaine from wine, and from all things in generall that by their heat inflame the blood and diffuse it by their vaporous substance: he shall shunne hot and very cold places, and shall procure that his belly may be soluble, either by nature or art. Let blood first be drawn out of the *vasilica*, then from the *vena frontis*, and lastly from the vein of the nose. Let leaches be applied to sundry places of the face, and cupping glasses with scarification to the shoulders.

Remedies.

For particular or proper remedies, if the disease be inveterate, the hardness shall first be loosed with emollient things, then assaulted with the following ointments, which shall be used or changed by the Chirurgical as the Physician shall thinke fit.

An approved
ointment.

Rx. succi citri, 3 iii. cerus. quantum sufficit ad eum inspissandum, argenti vivi cum saliva & sulphure vivo extincti, 3 ß. incorporatentur simul, & fiat unguentum.

Rx. boracis, 3 ii. farin. cicer. & fabar. an. 3 iß. caph 3 i. cum melle & succo cepæ fiant trochisci: when you would use them, dissolve them in rose and plantaine water, and spread them upon linnen cloaths, and so apply them on the night time to the affected parts, and so let them be oft times renewed.

Rx. unguenti citrini recenter dispensati, 3 ii. sulphuris vivi, 3 ß. cum modico olei sem. cucurb. & succi limonum, fiat unguentum; with this let the face be anointed when you

goe to bed, in the morning let it bee washed away with rose water, being white by reason of bran infused therein: moreover, sharp vinegar boyled with branne and rose water, and applied as before, powerfully takes away the rednesse of the face.

Rx. cerus. & litharg. auri, sulphuris vivi pulverisati, an. ʒ ss. ponantur in phiala cum aceto & aqua rosarum: linnen cloaths dipped herein shall be applied to the face on the night, and it shall bee washed in the morning with the water of the infusion of bran: this kinde of medicine shall be continued for a moneth.

Rx. sanguinis tauri, lb i. butyri recentis, lb ʒ. fiat distillatio, utatur. The liquor which is distilled for the first daies is troubled and stinking, but these passed, it becommeth cleare and well smelling. Some boile bran in vinegar and the water of water lillies, and in this decoction they dissolve of sulphur and camphire a fit proportion to the quantity of the decoction, and they apply cloaths moistened in this medicine to the face in the evening.

℞. album. ovar. nu. ii. aqua ros. ʒ i ʒ. succi plantag. & lapath. acut. an. ʒ i ʒ. sublimati, ʒ i. incorporantur in mortario marmoreo. *Rx. axung. porci decies in aceto lota, ʒ i. argenti vivi, ʒ i. aluminis, sulphuris vivi, an. ʒ i. pistentur omnia diu in mortario plumbeo, & fiat unguentum; argentum vivum non debet nisi extremo loco affundi.* *Rx. rad. lapath. acut. & asphodel. an. ʒ ii. coquantur in aceto scillitico, postea tundantur, & setaceo trajiciantur, addendo auripigmenti, ʒ ii. sulphuris vivi, ʒ x.* let them be incorporated and make an ointment to be used to dry up the pustles. To dry up the pustles.

℞. rad. liliorum sub cineribus coctorum, ʒ iv. pistillo tussis, & setaceo trajectis, adde butyri recentis, & axung. porci, lota in aceto, an. ʒ i. sulphuris vivi, ʒ iii. camphor. ʒ iii. succi limonum quantum sufficit, malaxentur simul & fiat unguentum. *Rx. lactis virginialis, lb ʒ. aluminis, ʒ ʒ. sulphuris vivi, ʒ i. succi limonum, ʒ vi. salis com. ʒ ʒ.* let them all be distilled in a glasse alembicke, and the water kept for the forementioned uses.

Rx. lapath. acut. plantag. n. & asphodel. an. ʒ i ʒ. olei vitel. ovar. ʒ i. tercbinth. venet. ʒ ʒ. succi limonum, ʒ iii. aluminis combust. ʒ i. argenti vivi extinct. ʒ i. olei liliorum, ʒ ʒ. tundantur omnia in mortario plumbeo, addendo sub finem argent. viv. ne mortario adherescat. The juice of onions beaten with salt, or the yelkes of egges are good for the same purpose.

For staying and killing of Ring-wormes and Tettars, the leaves of hellebore beaten with vinegar are good, the milke of the fig tree is good of it selfe, as also that of the sparges, or mustard dissolved in strong vinegar with a little sulphur. Or, To kill tettars.


℞. sulphuris, calcanthi, & aluminis, an. ʒ i. macerentur in aceto forti, trajiciantur per linteum, apply the expressed juice. Others macerate an egge in sharpe vinegar, with coporose and sulphur vivum beaten into fine powder, then they straine or presse it through a linnen cloath.

But seeing the forementioned medicines are acride, and for the most part eating and corroding, it cannot bee but that they must make the skinn harsh and rough, therefore to smooth and levigate it againe, you shall make use of the following ointment.

Rx. tercb. ven. tam diu lota, ut acrimoniam nullam habeat, butyri salis expertis, an. ʒ i ʒ. olei vitel. ovar. ʒ i. axung. porci in aqua rosarum lota, ʒ ʒ. cera parum, fiat linimentum ad usum. To the same purpose you may also make use of some of the forementioned medicines. To smooth the skinn.

CHAP. XLVI.

To blacke the haire.

 First the haire, (to take the *fucus* or tincture, and to retaine it) must be prepared with Lye, wherein a little roche Alome is dissolved. Thus the fatty scales may be washed and taken away, which hinder, and (as it were) keep away the *fucus*, that it cannot adhere or penetrate into the body of the haire. Then must we come to particular or proper & fitting medicines for

What things
are fit to dy
the haire.

for this purpose. These ought to be aromaticke and cephalicke, and somewhat stiptick, that by their odoriferous and astringent power they may strengthen the animal faculty: Furthermore, they must be of subtle parts, that they may enter even into the inner rootes of the haire.

Rx. Sulphuris, vitrioli, gallarum, calcis viva, lithargyri, an. 3 ii. scorie ferri, 3 B. in pol. linem reducantur, & cum aq. communi incorporentur, ut inde fiat massa: with this at bed time let the haire be rubbed, and in the morning let them be smoothed with the same.

Rx. calcis lota, 3 i. lithargyri utriusq; 3 B. cum decocto gallarum, corticum, nucum, fiat massa, addendo olei chamem. 3 ii. Rx. litharg. auri, 3 ii. ciner. clavelat. 3 i 8. calcis viv. 3 i. dissolve omnia cum urena hominis donec acquirant consistentiam unguenti pro unctione capillorum. 4. calcis lota, 3 iv. lithargyri utriusq; an. 3 ii. cum decoct. salu. & cort. granat. fiat pasta ad formam pultis satis liquida: let the haire at bed time be died herewith, and washed in the morning with wine and water.

How to wash
Lime.

Now the manner of washing lime is thus: Infuse in ten or twelve pints of faire water one pound of lime, then poure out the water by stooping the vessell, putting more in the stead thereof; the third time in stead of common water powre thereon the water of the decoction of sage and galls, let the lime lye therein for so many houres, then in like manner powre it off by stooping the vessell, and thus you shall have your lime well washed. There is also found a way how to die or black the haire by only powing of some liquor thereon: as, 4. argenti purissimi, 3 ii. reducantur in tenuissimas laminas, ponantur in ampulla vitrea cum 3 ii. aqua separationis auri & argenti, & aqua rosar. 3 vi. The preparing of this water is thus, put into a violl the water of separation and the silver, and set it upon hot coales so to dissolve the silver, which being done then take it from the fire, and when it is cold, adde thereto the rose water. But if you would black it more deeply, adde more silver thereto, if lesse, then a smaller quantity; to use it, you must sleepe the combe wherewith you combe your head in this water.

A water to black
the haire.

Rx. plumbi usti, 3 ii. gallarum non perforat. cortic. nucum, an. 3 iii. terra sigil. ferret. hispan. an. 3 ii. vitriol. rom. 3 vi. salis gem. 3 i B. caryoph. nucis mosch. an. 3 i. salis ammon. aloes, an. 3 B. fiat pulvis subtilissimus: let this powder be macerated in vinegar for three daies space, then distill it all in an alembick, the water that comes therefrom is good for the foresaid use. The following medicine is good to make the haire of a flaxen colour. 4. flor. genist. stachad. & cardamom. an. 3 i. lupinor. conquassat. rasur. buxi, corticis citri, rad. gentian. & berber. an. 3 i B. cum aqua vitri fiat lenta decoctio: herewith bathe and mousten the haire for many dayes.

To make the
haire of a flax-
en colour.

CHAP. XLVII.

Of Psilothra, or Depilatories: and also of Sweet waters.

A depilatory.



Medicines to fetch off haire, which by the Greeks are termed *Psilothra*, and *Depilatoria* in latine vulgarly, are made as you may learn by these following examples. *Rx. calcis viva, 3 iii. auripigmenti, 3 i.* let the lime be quencht in faire water, and then the orpiment added with some aromaticke thing: have a care that the medicine lye not too long upon the part, otherwise it will burne; and this medicine must be made to the consistence of a pultis and applied warme, first fomenting the part with warme water; for then the haire will fall off by gentle rubbing or washing it with warme water: but if there happen any excoriation thereupon, you may helpe it by the use of *unguentum rosatum*, or some other of the like faculty.

Another.

Rx. calcis viv. aurip. citrin. an. 3 i. amyl. spuma argent. an. 3 B. terantur & incorporentur cum aq. com. & bulliant simul: you shall certainly know that it is sufficiently boiled, it putting thereinto a gootes quill, the feathers come presently off: some make into powder equall parts of unquencht lime and orpiment, they tye them up in a cloath, with which being steeped in water they besmear the part, and within a while

after

after by gently stroaking the head, the haire falls away of it selfe. The following Sweet waters are very fitting for to wash the hands, face, and whole body, as also linnen, because they yeeld a gratefull smell: the first is lavender water thus to be made. ʒ. flor. lavend. lb. iv. aq. rosar. & vini alb. an. lb. ii. aq. vita, ʒ. iv. misceantur omnia simul, & fiat distillatio in balneo Mariae: this same water may also bee had without distillation, if you put some lavender flowers in faire water, and so set them to sunne in a glasse, or put them in balneo, adding a little oile of spike and muske. Clove water is thus made: R. caryoph. ʒ. ii. aq. rosar. lb. ii. macerentur spatio xxiv. horarum, & distil- Clove water
lentur in balneo Mariae. Sweet water commonly so called, is made of divers odorife- Sweet water:
rous things put together; as thus, R. mentha, majorana, hyssopi, salvia, ro-
rismarini, lavendula, an. m. ii. radice ireos, ʒ. ii. caryophylorum, cina-
momi, nucis moschata, ana, ʒ. β. limonum, num. iv.
macerentur omnia in aqua rosarum, spatio
viginti quatuor horarum, distil-
lentur in balneo Mariae,
addendo Moschi,
ʒ. β.

The End of the Twenty sixt Booke.



1014





OF DISTILLATIONS.

THE TWENTIEIGHTH BOOKE.

CHAP. I.

what Distillation is, and how many kinds thereof there be.



Aviog finisht the Treatise of the faculties of medicines, it now seemes requisite that we speake somewhat of Chymistry and such medicines as are extracted by fire. These are such as consist of a certaine fitt essence separated from their earthy impurity by Distillation, in which there is a singular, and almost divine efficacy in the cure of diseases. So that of so great an abundance of the medicines there is scarce any which at this day Chymists doe not distill, or otherwise make them more strong and effectuell than they were before. Now

Distillation is a certaine art or way by which the liquor or humid part of things, by the vertue and force of fire or some semblable heate (as the matter shall seeme to require) is extracted and drawne, being first resolved into vapour and then condens'd againe by cold. Some call this art *Sublimation* or subliming, which signifies nothing else but to separate the pure from the unpure; the parts that are more subtile and delicate from those that are more corpulent, grosse and excrementitious; as also to make those matters whose substance is more grosse, to become more pure and sincere, eyther for that the terrestriall parts are ill united and conjoynd, or otherwise confused into the whole and dispersed by the heate and so carried up, the other grosser parts remaining together in the bottome of the vessell. Or a distillation is the extraction or effusion of moisture distilling drop by drop from the nose of the Alembicke or any such like vessells. Before this effusion or falling downe of the liquor there goes a certaine concoction performed by the vertue of heate; which separates the substances of one kind from those of another that were confusedly mixed together in one body, and so brings them into one certaine forme or body, which may be good and profitable for divers diseases. Some things require the heate of a cleare fire, others a flame, others the heate of the Sunne, others of Ashes or sand or the filings of Iron; others horse dung, or boyling water or the oilely vapour or steame thereof. In all these kinds of fires, there are foure considerable degrees of heate. The first is contained in the limits of warmth, and such is warme water, or the vapour of hot water. The second is a little hotter, but yet so as the hand may abide it without any harme, such is the heate of Ashes. The third exceeds the vehemency of the second, wherefore the hand cannot long endure this without hurt, and such is the heate of sand. The fourth is so violent, that it burneth any thing that cometh neare, and such are the filings of Iron.

What distillation is.

Foure degrees of heate.

The first degree is most convenient to distill such things as are subtile and moist as flowers. The second such as are subtile and dry as those things which are odoriferous and aromaticall, as Cinnamon, Ginger, Cloves. The third is fittest to distill such things are of a more dense substance and fuller of juice; such as are some Roots, and

What heate fittest for what things.

Zzzz

gums.

gumms. The fourth is fit for mettalls and mineralls as, Allum, Vitrioll, Amber, Iet, &c. In like manner you may also distill without heate; as wee use to doe in those things which are distilled by straining, as when the more pure is drawne and separated from that which is most unpure and earthy, as wee doe in *Lac Virgineale*, and other things which are strained through an hypocras bag, or with a peece of cloath cut in the forme of a tongue, or by settling, or by a vessell made of Ivy wood: sometimes also somethings may bee distilled, by coldnesse and humidity, and so we make the oile of Tartar, Myrrhe and Vitriolls, by laying them upon a marble in a cold and moist place.

CHAP. II.

Of the matter and forme of Fornaces.

The matter
the best for
Fornaces.



A round forme
the best for
Fornaces.

He matter and forme of Fornaces uses to bee divers. For some Fornaces use to bee made of bricke and clay, other some of clay onely, which are the better and more lasting, if so bee the clay bee fat and well tempered with whites of Egges and haire. Yet in suddaine occasions when there is present necessity of distillation, fornaces may be made of bricks, so laid together that the joynts may not agree, but be unequal, for so the structure will be the stronger. The best and fittest forme of a Fornace for distillation is round; for so the heate of the fire carried up equally diffuses it selfe every way, which happens not in a Fornace of another figure, as square or triangular, for the corners disperse and separate the force of the fire. Their magnitude must bee such as shall bee fit for the receiving of the vessell. For their thicknesse, so great as necessity shall seeme to require. They must be made with two bottomes, distinguisht as it were into two forges, one below which may receive the ashes of the coales or the like other fuell, the other above to containe the burning coales or fire. The bottome of this upper must cyther bee an iron grate, or else it must bee perforated with many holes, that so the ashes may the more easily fall downe into the bottome, which otherwise would extinguish the fire; yet some Fornaces have three partitions, as the Fornace for reverberation. In the first and lowest the ashes are received, in the second the coales are put, & in the third the matter which is calcin'd or else distilled. The third ought to have a semicircular cover, that so the heate or flame may bee reflected upon the contained matter. The lower partition shall have one or more dores, by which the fallen downe ashes may bee taken forth. But the upper must have but one, whereby the coales or wood may be put in. But in the top or upper part of the Fornace where it shall seeme most fit, there shall be two or three holes made, that by them you may blow the fire and that the smoake may more freely passe out. But these forementioned dores must have their shutters, just like an ovens mouth. But in defect of a fornace or fit matter to build one withall, wee may use a kettle, set upon a trefoote after the manner that wee shall presently declare when wee come to speake of that distillation which is to bee made by *Balneum Marie*.

CHAP. III.

Of vessels fit for Distillation.

Vessells for Distillation consist of different matter and forme, for they are eyther of Lead, Tinne or Brasse, or else earthen vessells and these are sometimes leaded, sometimes not: or else they are of Gold, silver,

silver or glasse. Now for leaden vessels they are worse than the rest, and utterly to be refused, especially when as the liquors which are drawne by them are to be taken into the body by the mouth, by reason of the malignant qualities which are said to be in Lead; by which occasion, *Galen* condemnes those waters which runne, and are contained in Leaden pipes, which by reason of their saltishnesse and acrimony which favours of quicksilver, they cause dysenteries. Therefore you may perceive such waters as are distilled through a leaden head to be endued with a more acrid and violent piercing vapour, by reason the portion of that saltishnesse dissolved in them, & as it were shaved from the top of the Alembicke or head, defiles the distilled liquors, and whitens and turnes them into a milky substance: but copper or brassee heads are more hurtfull than Lead, for they make the waters that come through them to favour or partecipate of brassee. Those that are of gold and silver are lesse hurtfull; but the greatnesse of the cost hinders us from making heads of such mettalls; therefore we must have a care that our vessels for distillation be eyther of porters mettall leaded, or else of brassee, or of that iugge mettall which is commonly called *terra betovacensis*, and these rather than of Lead, or any other mettall. Verily glasses are thought the best; and next to them, earthen vessels leaded, then of iugge mettall, and lastly these of tinne. There is great variety of vessels for distillation in forme and figure; for some are of an ovall or cilindricall figure, that is, of a round and longish; others are twined and crooked, others of other shapes, as you may see in the beakes of the Chimicks. Of this almost infinite variety of figures I will in fit place give you the delineation and use of such as shall seeme to be most necessary.

Leaden vessels ill.

Brassee worse

The best vessels for distillation.

CHAP. III.

What things are to be considered in distillation.



First make choyse of a fit place in your house for the fornace, so that it may neither hinder any thing, nor be in danger of the falling of any thing that shall lye over it. When you shall distill any thing of a malignant or venenare quality, ye shall stand by it as little as you may, least the vapour should doe you any harme: when you provide glasse vessels for distillation, make choice of such, as are exquisitely baked, without flaws or crackes, and such as are every where smooth. Let not the fire at first be very violent, not onely for feare of breaking the vessels, but also for that the first fire in distillation must be gentle, and so increased by little and little. The things to be distilled, ought not to be put in too great quantity into the body of the still, least they should rise up or fly over. Hot things, that they may be more effectually must be twice or thrise distilled, by powring upon them their owne distilled water or other fresh materials, or else by distilling them severally and by themselves: of this kind are gummes, waxe, fatts, or oyles.

Hot things must be often distilled.

But in each other repeated distillations you must something lessen the force of the fire, for the matter attenuated by the former distillation cannot afterward indure so great heate: but aromaticke things, as Cloves, Cinnamon &c. as also the chemicall oyles of Sage, Rosemary, Time, &c. ought not to be distilled or rectified over againe, for that we must presently after the first distillation have a diligent care to separate them from the phlegme, that is, the more watry substance of the whole liquor; to which purpose we must have regard to that which is distilled, for there are some things which first send over their phlegme as Vinegar, others, wherein it comes last, as ** aqua vite*.

* By *Aqua vite* in this and most other places is meant no other thing but the spirit of wine.

If you would give to things to be distilled another taste or smell than that which they have naturally, you may mixe with them some odoriferous

thing,

thing, as Cinnamon, Camphire, or Muske, or the like, as you please, and so distill them together. The distilled liquors which are drawne by the heate of ashes or sand, savour of and retaine a certaine *empyreuma*, or smatch of the fire; for the helping of which, you shall put them into glasses very close stopr, and so expose them to the sunne, and now and then open the glasses that this fiery impression may exhale, and the *phlegmen* be consumed, if that there shall be any. But though in all distillation, three are many things to be observed, yet are there two things, chiefly worthy of note. The first is, the matter that is to be distilled and wrought upon, that is, of what kind it is, and what the nature thereof may doe and suffer. The other is the Fornace, which ought to be provided of a convenient matter and figure for that which is to be distilled: for you cannot draw any thing of any matter, neither of every mixture being distilled can you rightly expect oyle or water. For mixt bodies doe not consist of an equall portion of the foure Elements, but some are more aiery, others more fiery, some participate more of the water, others more of the earth, and that presently from their first originall. Therefore as watry things, yeeld more water, so aiery and fiery things yeeld more oyle when they are distilled; neither are all instruments fit for the extracting of every liquor. Moreover you must note, that the watery liquor sometimes comes forth in the first place, and presently after by the helpe of a stronger fire followes the oylely, which we finde happens as often as the plant or parts of the plants which are distilled, are of a cold temperament; for in hot things it happens otherwise, for the first liquor which comes forth is oylely, and the following waterish.

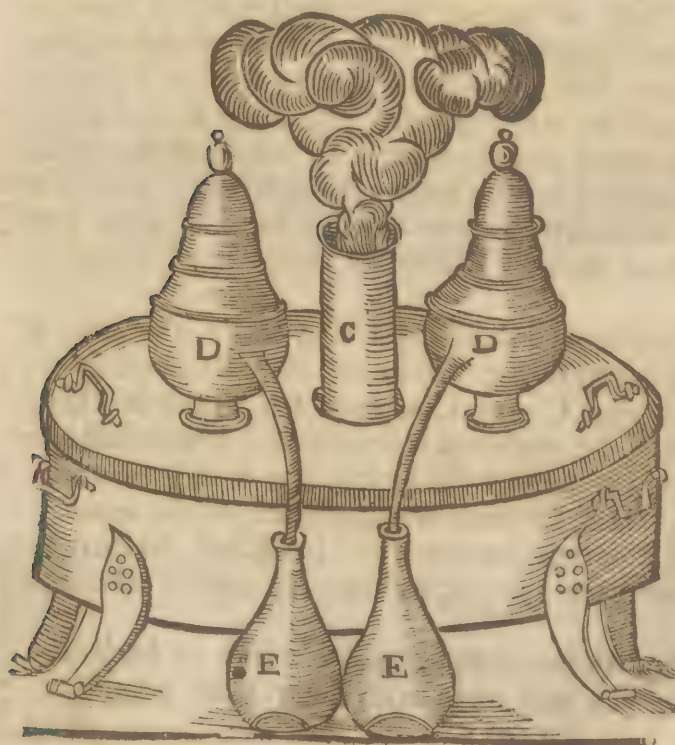
CHAP. V.

Of what fashion the vessells for the distilling of waters ought to be.

The parts of
an Alembicke.

IN the distilling of any kind of waters, two kind of vessells are necessary, which are comprehended under this one generall name of an Alembicke. They call one of them the body, or containing vessell, the other the head, that is, the cap or top wherein the ascending vapours are condensed or turned into water. It is called the head, because it stands over the body, like as an head; from the head there comes out a pipe or nose whereby the distilled liquor flowes drop by drop into the receiver, as you may see by the following figure.

The Fornace for a Balneum Mariæ with the Alembick, and their receivers.



A. Shewes a brasie kettle full of water.

B. The cover of the kettle perforated in two places, to give passage forth to the Vessells.

C. A pipe or Chimney added to the kettle, wherein the fire is contained to heate the water.

D. The Alembicke consisting of his body and head.

E. The receiver whereinto the distilled liquor runs.

The

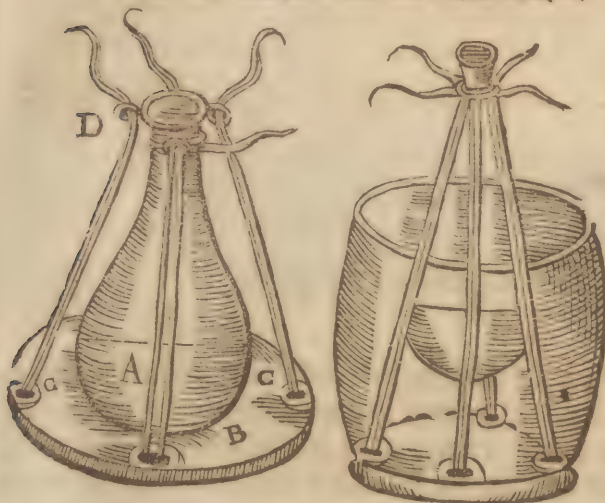
The effigies of another balneum Mariæ, not so easy to be removed as the former.



A. Shewes the vessell or Copper that contains the water.

B. The Alembicke set in water.

But least the bottome of the Alembicke being halfe full, should floate up and downe in the water, and so sticke against the sides of the Kettle; I have thought good to shew you the way and meanes to prevent that danger.



A. Shewes the Vessell or glasse Alembicke.

B. A plate of Lead whereon it stands.

C. Strings that bind the Alembicke to the plate.

D. Rings through which the strings are put, so fasten the Alembicke.

You may also distill the liquors of things, by the vapour or steame of boyling water, if so be that you bee provided of Vessells and formes made after this following manner.

A Fornace with his vessells to distill liquors with the steame of boyling water.



A. Shewes the head of the Alembicke.

B. The body thereof, placed in a brasse vessell made for that purpose.

C. A brasse vessell perforated in many places to receive the vapour of the water. This vessell shall containe th' Alembicke compassed about with sawdust, not onely that it may the better and longer retaine the heate of the vapour, but also least it should be broken by the hard touch of the brasen vessell.

D. Shewes the brasse vessell containing the water as it is plac't in the Fornace.

E. The Fornace containing the vessell.

F. A Funnell by which you may now and then powre in water, in stead of that which is vapour and dissipated by the heate of the fire.

G. The Receiver.

Now for the faculties of distilled waters it is certaine, that those which are drawne in balne Mariæ or a double vessell, are farre better and efficacious, because, they

What things
that are distilled in
Balneo Mariae
more of the
fire of
the gas.

doe not onely reteine the smell of the things which are distilled, but also the taste, as acidity, harshnesse, sweetnesse, bitternesse, and other qualities, so that they will neither savour of smoake nor burning; for the milde and gentle heate of a bath contains by his humidity, the more subtile parts of the plants that are distilled, that they be not dissipated and exhaled, contrary to which it usually happens in things which are distilled by the burning heate of wood or coales. For these have a certaine nitrous and acrid taste, favouring of the smoake of fire. Besides, they acquire a malignant quality from the vessels out of which they are distilled, especially if they bee of Lead, whence they contract qualities hurtfull to the principall, vitall, and naturall parts.

Therefore the plants which are thus distilled, if they be bitter by nature, presently become insipid, as you may perceive by wormewood water thus distilled. Those things which are distill'd in *Balneo Maria* are contained in a glasse vessel, from which they can borrow no malignant quality. Therefore the waters so drawne are more effectually and pleasing in taste, smell, and sight. You may draw waters not onely from one kind of plant, but also from many compounded and mixed together: Of these some are alimentary, others medicinall, yea and purging; others acquir'd for smell, others for washing or smoothing of womens faces, as wee shall shew hereafter.

CHAP. VI.

How the materials must be prepared before Distillation.



Things before they be put into the Alembicke must undergoe a preparation, that is, they must be cut small, beaten and macerated, that is, steeped in some liquor, that so they may be the more easily distilled and yeeld the more water, and retaine their native smell and faculties; yet such preparation is not convenient for all things; for there be some things, which neede no infusion or maceration, but must rather bee dried before they bee distilled, as Sage, Time, Rosemary, and the like, by reason of their too much humidity; it will be sufficient to sprinkle other things with some liquor onely. In this preparation there are two things observable, to wit, the time of the infusion and condition of the liquor wherein these things ought to bee infused. The time of the infusion is different according to the variety of the matter to be macerated; for things that are hard, solid, dry or whole, must be longer macerated, than such as are tender, freshly gathered or beaten: whence it is that rootes and seedes require a longer time of infusion; flowers and leaves a shorter, and the like of other things. The liquors wherein infusion must be made, ought to bee agreeable to the things infused. For hot ingredients require hot liquors, and cold such as are cold wherein they may be infused.

What things
neede not to
be macerated
before they bee
distilled.

Such things as have not much juice, as Betonie, wormewood and the like, or which are very odoriferous, as all aromaticke things, would be infused in wine, so to preserve their smell, which otherwise by the force of the fire, by reason of the tenuity of the substance, easily vanishes. But if wee desire that the distilled liquor should more exactly reteine and have the faculty of the things whereof it is distilled, then must you infuse it in the juice thereof, or some such appropriate liquor, that it may swimme in it whilst it is distilled, or at least let it bee sprinkled therewith.

The maceration
of plants
in their owne
juice.

CHAP. VII.

Of the art of distilling of waters.

BEfore I describe the manner how to distill waters, I thinke it not amisse briefly to reckon up how many sorts of distilled waters there bee, and what the faculties of them are. Therefore of distilled waters some are medicinall, as the waters of Roses, Plantaine, Sorrell, Sage, and the like: others are alimentary, as those waters that we call Restauratives; other some are composed of both, such as are these restaurative waters which are also mixed with medicinall things; others are purging, as the distilled water of Greene and fresh Rubarbe; other some serve for smoothing the skinne, and others for smell; of which sort are those that are distilled of aromaticke things.

The varieties
of stilled was
ters.

To distill Rose water, it will be good to macerate the Roses before you distill them for the space of two or three dayes, in some formerly distilled Rosewater, or their pressed out juice, luting the vessell close; then put them into an Alembicke closely luted to his head and his receiver, and so put into a *Balneum Marie*, as wee have formerly described.

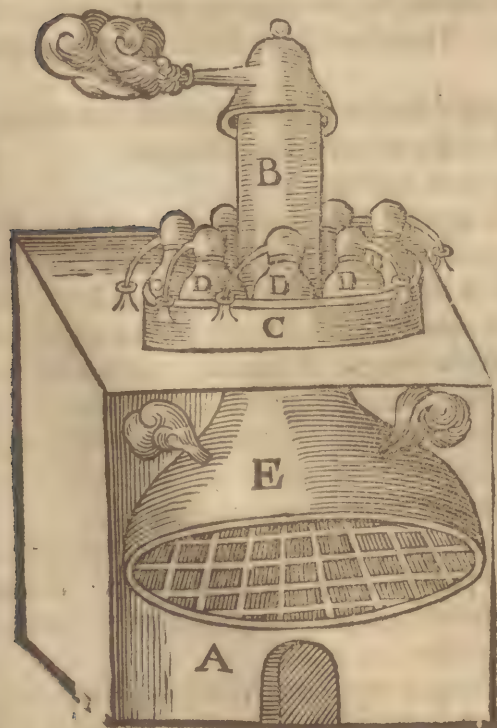
Rose water;

The distilled Alimentary liquors are nothing else than those that wee vulgarly call Restauratives; this is the manner and art of preparing them. Take of Veale, Mutton, Kid, Capon, Pullet, Cocke, Partridge, Pheasant, as much as shall seeme fit for your purpose: cut it small, and least it should acquire heate, or *empyreuma* from the fire, mixe therewith a handfull of French Barley, and of red Rose leaves dry and fresh, but first steeped in the juice of Pomegranats, or citrons and Rosewater with a little Cinnamon, as much.

Restauratives,

But if you desire that this restaurative should not onely bee alimentary but also medicinall, you shall adde thereto such things as shall resist the disease, such as are Cordiall pouders as of *El. Diamargarit. frigid. De Gemmis, Aromaticum Rosat.* Conserve of Buglosse, Borrage, roots, hearbes, seeds and other things of that kind. But if it be in a pestiferous season, Treacle, Mithridate and other Antidotes shall be added; each of these shall be laid in rankes or orders one over another, which is vulgarly termed *stratum super stratum*, in a glasse Alembicke, and distilled in *balneo Marie* with the heate of Ashes, or else of warme sand, as the following figure shewes.

The delineation of a *Balneum Mariæ*, which may also serve for to distill with Ashes.



A. Shewes the Fornace with the hole to take forth the Ashes.

B. Shewes another Fornace, as it were set in the other: now it is of Brasse, and runs through the midst of the kettle made also of brasse, that so the contained water or ashes may bee the more easily heated.

C. The kettle wherein the water, ashes, or sand are contained.

D. The Alembicke set in the water, ashes, or sand, with the mouthes of the receivers.

E. The bottome of the second brasse Fornace, whose top is marked with B. which contains the fire.

and
to the
distill.

Another way
of making res-
torative Li-
quors.

There may be made other restoratives in shorter time with lesse labour and cost. To this purpose the flesh must be beaten and cut thinne, and so thrust through with a double thred, so that the peices thereof may touch each other; then put them into a Glasse, and let the thred hang out; so stop up the glasse close with a linnen cloth, Cotton, or Towe, and lute it up with paste made of meale and the whites of egges; then set it up to the necke in a kettle of water, but so that it touch not the bottome, but let it be kept upright by the formerly described meanes; then make a gentle fire thereunder, untill the contained flesh by long boyling shall bee dissolved into juyce, and that will commonly be in some foure houres space. This being done, let the fire be taken from under the kettle, but take not forth the glasse before the water be cold, least it being hot should be broken by the suddaine appulse of the cold aire. Wherefore when as it is cold, let it be opened, and the thred with the peeces of flesh be drawne forth, so that onely the juyce may be left remaining; then straine it through a bagge, and aromatize it with Sugar and Cinnamon, adding a little juyce of Citron, Verjuice or Vinegar, as it shall best like the patients palate.

After this manner you may quickly, easily and without great cost have and prepare all sorts of restoratives aswell medicated as simple. But the force and faculty of purging medicines is extracted after a cleane contrary manner than the oyles and waters are drawne of Aromaticke things, as Sage, Rosemary, Time, Aniseedes, Fennell, Cloves, Cinnamon, Nutmegs, and the like. For the strength of these, as that which is subtile and ayery, flies upwards in distillation; but the strength of purging things, as Turbith, Agaricke, Rubarbe and the like, subside in the bottome. For the purgative faculty of these purgers inseparably adheres to the bodies and substances.

Now for sweet waters and such as serve to smooth the skinne of the face, they may be distilled in *Balneo Maria* like as Rose water.

CHAP. VIII.

How to distill *Aqua vita*, or the spirit of wine.



Take of good White or Clarret wine or Sacke which is not sowre nor mustie, nor otherwise corrupt, or of the Lees that quantity which may serve to fill the vessell wherein you make the distillation to a third part; then put on your head furnished with the nose or pipe, and so make your distillation in *Balneo Maria*. The oftner it is distilled, or (as they tearme it) rectified, the more noble and effectuell it becomes. Therefore some distill it seven times over.

Spirit of wine
seven times
rectified.

At the first distillation it may suffice to draw a fourth or third part of the whole; to wit, of 24. pints of Wine or Lees, draw 6. or 8. pints of distilled liquor.

At the second time the halfe part of that is 3. or 4. pints.

At the third distillation the halfe part againe, that is, two pints; so that the oftner you distill it over, the lesse liquor you have, but it will be a great deale the more efficacious. I doe well like that the first distillation bee made in Ashes; the second in *Balneum Maria*. To conclude, that *aqua vita* is to be approoved of, neither is it any oftner to be distilled, which put into a spoone or saucer, and there set on fire, burnes wholly away and leaves no liquor, or moisture in the bottome of the vessell; if you drop a drop of oyle into this same water, it incontinently falls to the bottome; or if you drop a drop thereof into the palme of your hand, it will quickly vanish away, which are two other notes of probation of this liquor.

The faculties
of the spirit of
wine.

The faculties and effects of *aqua vita* are innumerable, it is good against the epileptic and all cold diseases, it asswages the paines of the teeth, it is good for punctures and wounds of the Nerves, faintings, swoonings, gangreenes and mortification, both of its flesh, as also put to other medicines for a vehicle.

There is this difference betweene the distilling of wine and Vinegar, wine being of an ayery and vaporous substance, that which is the best and most effectuell in it, to wit,


wit, the aiery and fiery liquor, comes from it presently at the first distillation. Therefore the residue that remains in the bottome of the vessel, is of a cold, dry and acrid nature; on the contrary, the water that comes first from Vinegar being distilled, is insipide and flagmaticke. For Vinegar is made by the corruption of wine, and the segregation of the fiery and aiery parts; wherefore the wine becomming lowre, there remains nothing almost of the former substance but phlegme; wherefore seeing phlegme is chiefly predominant in Vinegar, it first rises in distillation. Wherefore he that hopes to distill the spirit of Vinegar, hee must cast away the phlegmaticke substance that first rises, and when by his taste he shall perceive the spirit of the Vinegar, he shall keepe the fire there under, untill the flowing liquor shall become as thicke as honey; then must the fire be taken away, otherwise the burning of it will cause a great stinck.

The vessels fit to distill *aqua vita* and Vinegar are diverse, as an Alembicke or Retort set in sand or Ashes; a Coppar or brasie bottome of a still, with a head thereto, having a pipe comming forth thereof which runs into a worne, or pipe fastened in a barreil or vessel filled with cold water, and having the lower end comming forth thereof, whole figure wee shall give you when as wee come to speake of the drawing of oyles out of vegetables.

The distilling
of Wine and
Vinegar is
different.

CHAP. IX.

Of the manner of rectifying, that is, how to encrease the strength of waters, that have beene once distilled.

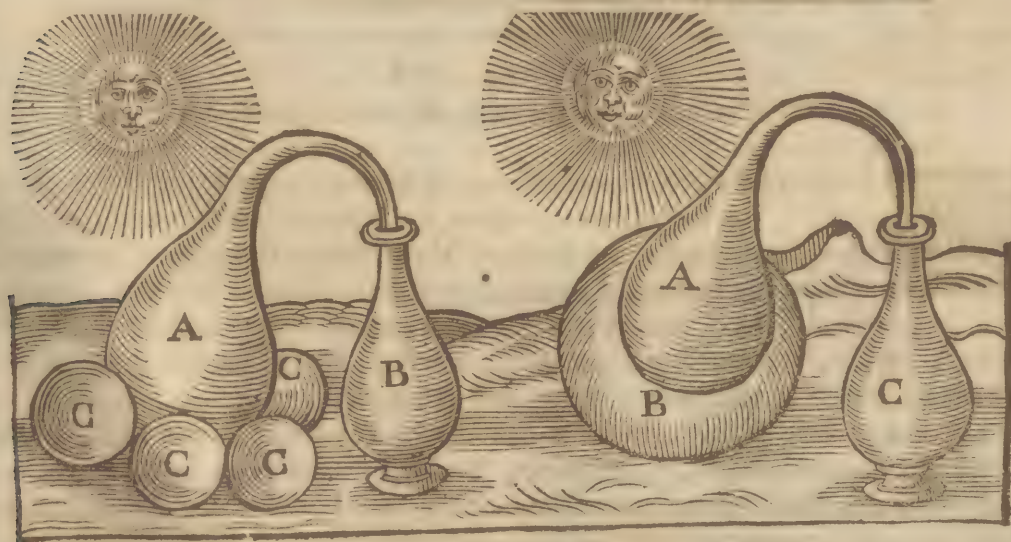
 O rectifie the waters that have beene distilled in *Balneo Maria*, you must set them in the Sunne in glasses well stopped and halfe filled, being set in sand to the third part of their height, that the water waxing hot by the heate of the Sun may separate it selfe from the phlegme mixed therewith, which will be performed in 12. or 15. dayes. There is another better way to doe this, which is to distill them againe in *Balneo* with a gentle fire, or if you will put them into a retort furnished with his receiver, and set them upon crystall or iron bowles, or in an iron mortar directly opposite to the beames of the Sun, as you may learne by these ensuing signes.

The first way.

The second;

A Retort with his receiver standing upon Crystall bowles, just opposite to the Sunne beames.

Another Retort with his receiver standing in a Marble or Iron mortar, directly opposite to the Sun.



A. Shewes the Retort.
B. The receiver.
C. The Crystall bowles.

A. Shewes the Retort.
B. The Marble, or Iron mortar.
C. The receiver.

CHAP. X.

Of distillation by filtering.



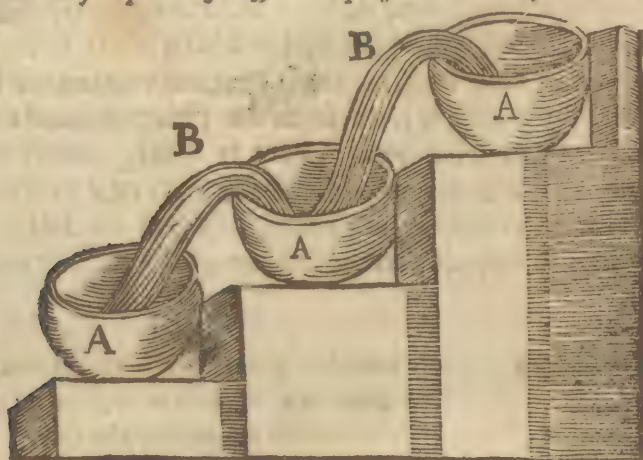
You shall set three basons or vessells of convenient matter in that site and order that each may be higher than other; that which stands in the highest place, shall containe the liquor to bee distilled, and that which stands lowest shall receive the distilled liquor. Out of the first and second vessell shall hang shreds or peeces of cloth or cotton, with their broader ends in the liquor or upper vessell, and the other sharper ends hanging downe, whereby the more subtle and defæcate liquor may fall downe by drops into the vessell that stands under it, but the grosser and more feculent part may subside in the first and second vessell. You by this meanes may at the same time distill the same liquor divers times, if you place many vessells one under another after the forementioned manner, and so put shreds into each of them, so that the lowest vessell may receive the purified liquor. In stead of this distillation Apothecaries oft times use bagges.

This manner of distillation was invented to make more cleare and pure waters, and all juices and compositions, which are of such a liquid consistence. You may take an example of this from *Lac Virginis*, or Virgins milke, of which this is the description.

Re. litharg. auri diligenter pulveris. ℥ij. macerentur in aceti boni ℥vj. trium horarum spatio, seorsim etiam in aqua plantaginis, solani, rosarum, aut communi sal infundatur; then distill them both by shreds, then mixe the distilled liquors, and you shall have that which for the milkie whitenesse is termed Virgins milke, being good against the rednesse and pimples in the face, as we have noted in our Antidotary.

Ch. 44. of succi.

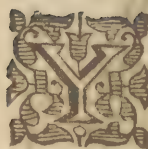
The description of vessells to performe the distillation or filtration by shreds.



A, Shewes the vessell:
B, The Clothes or shreds:

CHAP. XI.

What and how many wayes they are to make Oyles.



Oyles by expression.

By infusion.

By distillation.

Oyle of Bayes berries.

You may by three meanes especially draw or extract the oyles that you desire. The first is by expression, and so are made the oyles of Olives, nuts, seeds, fruits and the like. Under this is thought to bee contained elixation, when as the beaten materialls are boyled in water, that so the oyle may swimme aloft, and by this meanes are made the oyles of the feedes of the berries of Elder and Danewort, and of bay-berries. Another is by infusion, as that which is by infusing the parts of plants and other things in oyles. The third is by distillation, such is that which is drawne by the heate of the fire, whether by ascent or by descent, or by concurrence; The first way is knowne by all; now it is thus, take almonds in their huskes, beate them, worke them into a masse, then put them into a bagge made of haire, or else of strong cloth first steeped in water or in white Wine, then put them into presse and so extract their oyle. You may doe the same in pine apple kernells, Hazell nuts, Coco nuts, nutmegs, peach kernells, the seeds of gourds & cucumbers, pisticke nuts, and all such oiely things. Oyle of bayes may be made of ripe bay-berries newly gathered, let them be beaten in a mortar and so boiled in a double vessell, and then forthwith put into presse, so to extract oyle as you

you doe from Almonds, unlesse you had rather get it by boyling as we have formerly noted. Oyle of Egges is made of the yolkkes of Egges boiled very hard, when they are so, rub them to peeces with your fingers, then frye them in a panne over a gentle fire continually stirring them with a spoone untill they become red, and the oyle be resolved and flow from them; then put them into a haire cloth, and so presse forth the oyle. The oyles prepared by infusion are thus made, make choise of good oyle wherein let plants, or creatures, or the parts of them bee macerated for some convenient time, that is, untill they may seeme to have transfused their faculties into the oyle, then let them be boiled, so strained or pressed out. But if any aquosity remaine, let it be evaporated by boyling. Some in compounding of oyles adde gums to them, of which though we have formerly spoken in our Antidotary, yet have I thought good to give you this one example. *R. flor. hyper. lb. B. immittantur in phialam cum flo. cent. & gum. elemi, an. ℥ij. olei com. lb. ij.* Let them be exposed all the heate of Summer to the Sunne. If any will adde *aqua vita* wherein some Benzoin is dissolved, he shall have a most excellent oyle in this kind. Oyle of Masticke is made *Ex olei rosati ℥xij. mastich. ℥ij. vini optimi ℥viij.* Let them all bee boiled together to the consumption of the wine, then straine the Oyle and reserve it in a vessell.

Of Egges

Oyle of S.
Johnswort.

Of Masticke.

CHAP. XII.

Of extracting Oiles of vegetables by Distillation.

Almost all hearbes that carry their flowres and seeds in an umbell, have seeds of a hot, subtile and aiery substance, and consequently oily. Now because the oily substance that is contained in simple bodyes is of two kindes, therefore the manner also of extracting is twofold. For some is grosse, earthy, viscous, and wholly confused and mixt with the bodyes out of which they ought to be drawne, as that which wee have sayd is usually extracted by expression; this because it most tenaciously adheres to the grosser substance, and part of the body, therefore it cannot by reason of this naturall grossenesse, bee lifted up, or ascend. Other some are of a slender, and aiery substance, which is easily severed from their body, wherefore being put to distillation it easily rises: such is the oily substance of aromaticke things, as of Iuniper, Aniseeds, Cloves, Nutmegs, Cinnamon, Pepper, Ginger, and the like odoriferous and spicy things. This is the manner of extracting oyles out of them; let your matter be well beaten and infused in water to that proportion, that for every pound of the materiall, there may bee ten pints of water; infuse it in a copper bottome, having a head thereto either tinned or silvered over, and furnished with a couller filled with cold water. Set your vessell upon a furnace having a fire in it, or else in sand, or ashes. When as the water contained in the head shall waxe hot, you must draw it forth, and put in cold, that so the spirits may the better be condensed, and may not fly away: you shall put a long neckt receiver to the nose of the Alembicke, and you shall increase the fire, untill the things contained in the Alembicke boyle.

What oyles
are to be
drawne by
expression.The first
manner of
drawing oiles
by distillation.

There is also another manner of performing this distillation, the matter preserved and infused as we have formerly declared, shall be put in a brasse or copper bottome covered with his head, to which shall be fitted, and well luted, a worme of Tinne, this worme shall runne through a barrell filled with cold water, that the liquor which flowes forth with the oyle, may be cooled in the passage forth; at the lower end of this worme you shall set your receiver. The fire gentle at the first, shall be encreased by little and little, untill the contained matter, as wee formerly sayd, do boyle; but take heede that you make not too quicke or vehement a fire, for so the matter swelling up by boyling may exceede the bounds of the containing vessell, and so violently fly over.

Another way.

Observing these things, you shall presently at the very first see an oiley moisture flowing forth together with the watrish. When the oyle hath done owing which you may know by the colour of the distilled liquor, as also by the consistence

and

What oiles
fall to the bot-
tome,

and taste, then put out the fire; and you may separate the oyle from the water by a little vessell made like a Thimble and tyed to the end of a sticke; [or, which is better, with a glasse funnell, or instrument made of glasse for the same purpose.] Here you must also note that there be some oiles that swimme upon the top of the water, as oile of aniseedes; other some on the contrary, which fall to the bottome, as oile of Cinnamon, Mace, and Cloves.

Moreover you must note, that the wattrish moisture, or water that is distilled with oile of Aniseede and Cinnamon, is whitish, and in successe of time, will in some small proportion turne into oile. Also these waters must bee kept severall, for they are farre more excellent than those that are distilled by *Balneum Maria*, especially those that first come forth together with the oyle. Oiles are of the same faculties with the bodies from whence they are extracted, but much more effectually; for the force which formerly was diffused in many pounds of this, or that medicine, is after distillation contracted in a few drams. For example, the facultie that was dispersed over j. pound of Cloves, will be contracted into two ounces of oyle at the most; and that which was in a pound of Cinnamon will be drawne into 3iss. or 3ij. at the most of oile. But to draw the greater quantity with the lesser charge, and without feare of breaking the vessells, whereto glasses are subject, I like that you distill them in copper vessells, for you neede not feare that the oyle which is distilled by them will contract an ill quality from the copper, for the wattrish moisture that flowes forth together therewith will hinder it, especially if the copper shall be tinned or silvered over. I have thought good to describe and set before your eyes, the whole manner of this operation.

A Fornace with set vessells to extract the Chymicall oiles, or spirits of Sage, Rosemary, Time, Lavender, Aniseeds, Fennell seeds, Cloves, Nutmegs, Cinnamon, Pepper, Ginger, and the like; as also to distill the spirit of wine, of Vinegar and aqua vitæ. In stead of the barrell and worme, you may use a head with a bucket or rowler about it.



A. Shewes the bottome, which ought to be of Copper and tinned on the inside.

B. The head.

C. The Barrell filled with cold water to refrigerate and condensate the water and oyle that run through the pipe or worme that is put through it.

D. A pipe of brass or latten, or rather a worme of Tinne running through the Barrell.

E. The Alembicke set in the fornace with the fire under it.

Now because we have made mention of Cinnamon, Pepper, and other spices, which grew not here with us, I have thought good to describe these out of *Thevet's Cosmography*, he having scene them growing. Pepper growes on shrubs in *India*, these shrubs send forth little branches whereon hang clusters of berries, like to Ivy berries, or bunches of small blacke grapes, or currance. The leaves are like those of the Citron tree, but sharpish and pricking,

The *Indians* gather those berries with great diligence, and stow them up in large cellars, as soone as they come to perfect maturity. Wherefore it oft times happens, that there are more than 200. shippes upon the coast of the lesser *Iava* an Island of

The descrip-
tion of Pepp-
er.

of that country, to carry thence Pepper and other spices. Pepper is used in Antidotes against poysons, it provokes urine, digests, attracts, resolves, and cures the bites of Serpents. It is properly applyed and taken inwardly against a cold stomacke; in sauces it helps concoction and procures appetite; you must make choyse of such as is blacke, heave, and not flaccide. The trees which beare white, and those that beare blacke pepper, are so like each other, that the natives themselves know not which, is which, unlesse when they have their fruit hanging upon them, as the like happens upon our Vines which beare white and blacke grapes.

The tree that yeelds Cinnamon growes in the mountaines of *India*, and hath leaves very like to bay leaves; branches and shoores at certaine times of the yeere are cut from this tree, by the appointment of the King of that province, the barke of which is that we terme Cinnamon. This is sold to no stranger unlesse at the Kings pleasure and he setting the price thereof, it is not lawfull for others to cut any thereof.

Galen writes that Cinnamon is of very subtle parts, hot in the third degree, and partaking of some astringion; therefore it cuts and dissolves the excrements of the body, strengthens the parts, provokes the courses when as they stoppe by reason of the admixture of grosse humors; it sweetens the breath, and yeelds a fine taste and smell to medicines, hippocras, and sauces. Of Cinnamon there is made an excellent water against all cold diseases, and also against swoonings, the plague and poysons. The composition thereof is this. Take of the choycest and best Cinnamon one pound, beate it grossely, and put thereto of Rose water 4 pints, of white wine halfe a pint, being thus mixed, put them into a glasse and so let them stand in infusion 24 houres, often stirring of them. Then distill them in *Balneo Mariae*, closely luting the receiver and vessels least the spirit should fly away.

CHAP. XIII.

Another manner how to draw the essence and spirits of herbes, flowers, seedes, and spices; as also of Rubarbe, Agaricke, Turbith, Hermodactiles, and other Purgers.

You may extract the essences and spirits of the things mentioned in the title of this chapter, as thus. Take Sugar, Rubarbe, Cinnamon, or any other materiall you please; cut it small, or else beate it, then put it into a glasse with a long necke, and poure thereupon as much *aqua vite* as shall be sufficient to cover the materials or ingredients, & to overtop them some fingers breadth, then stop up the glasse very close that no ayre enter therein; Thus suffer it to infuse for 8 dayes in *balneo* with a very gentle heate; for thus the *aqua vite* will extract the facultyes of the ingredients, which you shall know that it hath done, when as you shall see it perfectly tintured with the colour of the ingredients. The eight dayes ended, you shall put this same *aqua vite* into another vessell filled with the like quantity of the same materials prepared after the same manner, that it may also take forth the tincture thereof, and doe thus three or foure times, untill the *aqua vite* be deeply tintured with the colour of the infused Ingredients.

But if the materials from whence you desire to extract this spirit or essence, bee of great price, as *Lignum Aloes*, *Rubarbe*, &c. You must not thinke it sufficient to infuse it once onely, but you must goe over it twise, or thrise, untill all the efficacie be extracted out thereof; you may know that it is all wholly insipide.

These things thus done, as is fitting, put all the liquor tintured and furnished with the colour and strength of the ingredients, into an Alembicke, fitted and closely luted to its head, and so put into *Balneum Mariae*, that so you may extract or draw off the *aqua vite*, to keepe for the like purpose, and so you shall have the spirit, and essence remaining in the bottome.

Now if you desire to bring this extract to the height of honey, set it in an earthen pot well leaded, upon hot ashes, so that the thinne part thereof may be evaporated, for thus at length, you shall have a most noble and effectuell essence of that thing

Aaaaa

which

A signe that the spirit of wine hath caught out the strength of the ingredients.

A signe that the ingredients have lost their strength.

which you have distilled, whereof one scruple will be more powerfull in purging, than two or three drammes of the thing its selfe.

CHAP. XIIII.

How to extract oyle out of Gums, condensed juices, and rofines, as also out of some woods.

What a Retort is.



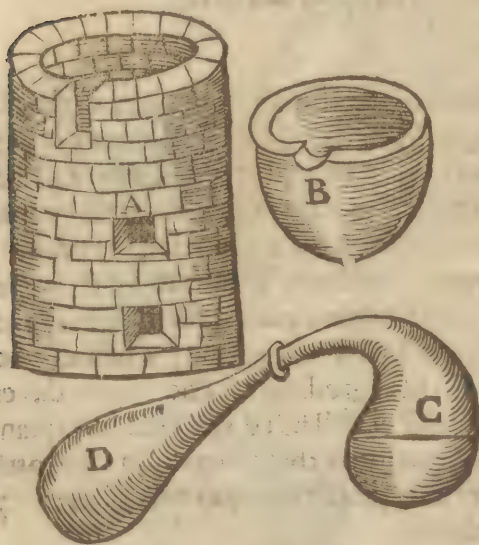
ALL oyles that are drawne out of Gummes, oyely woods and mettalls, are extracted by that vessell which we vulgarly terme a Retort. It must bee made of glasse, or jugges mettall well Leaded, and of such bignesse as shall be convenient for the operation you intend, though commonly it should be made to hold some gallon and an halfe of water; the necke thereof must be a foote and an halfe, or at least a foote long. The receiver is commonly a viall whereinto the necke of the Retort is fitted and inserted. Then the Retort shall bee set in an earthen pan filled with ashes, or sand, and so set into a furnace, as you may see by the following figure.

The differences of Gummes.

Cautions in distilling of Gummes.

Of gummes some are liquid, some solide; and of the solide, some are more solide than other some; those that are solide are more troublesome to distill than the liquide, for they are not so easily dissolved or melted, neither doe they yeeld so well to the fire, so that oft times they are burnt before they bee dissolved; whence it is that some for every pound of solide gumme, addetwo or three pounds of most cleare and liquide oyle of Turpentine. Besides, liquide things are also hard to be distilled, because when as they come to be thoroughly hot at the fire, they swell up so much, that they exceed, or runne out of the Retort, and so fall into the receiver, as they were put into the Retort, especially if so be that the fire be too hot at the first. Many to shunne this inconvenience, addetwo to the things put into the Retort, some sand, as it were, to balast it withall.

The figure of a furnace, with his earthen pan and receiver.



A. Shewes the furnace.

B. The earthen pan, or vessell to set the Retort in.

C. The Retort or Cucurbite.

D. The receiver.

How to make oyle of Turpentine.

Oyle of Rosin and Turpentine is thus made; take two or three pounds of Turpentine, and put it into a Retort of such largenesse, that three parts thereof might remaine empty, and for every pound of Turpentine addetwo or thre ounces of sand; then place the Retort in an earthen pan, filled with sifted ashes, and set it upon the furnace as is fit, and to the necke thereof fit and closely lute a receiver. Lastly, kindle thereunder a soft fire at the first, least the contained materialls should runne over; encrease this fire by little, and little, and take heed that the things become not too hot on a suddaine. At the first a cleare and acide liquor will drop out, wherein a certaine sediment uses to concreate; then will flow forth a most cleere oyle, somewhat resembling the warry and phlegmaticke liquor; then must the fire be somewhat encreased, that the third oyle, cleare, thinne and very golden coloured liquor may rise and distill; but then also a clearer and more violent fire must be rayed, that so you may

may extract an oyle that will be red like a carbuncle, and of a consistence indifferently thicke. Thus therefore you may extract, foure kinds of liquors out of Turpentine, and receive them being different in severall receivers; yet I judge it better to receive them all in one, that so by distilling them againe afterwards you may separate your desired oyle; now there will ten or twelve ounces of oyle, flow from an ounce of Turpentine. This kind of oyle is effectually against the Palsie, Convulsions, punctures of the nerves, and wounds of all the nervous parts.

But you shall thus extract oyle out of waxe; take one pound of waxe, melt it, and put it into a glasse Retort set in sand, or ashes, as wee mentioned a little before in drawing of oyle of Turpentine, then destill it, by encreasing the fire by degrees. There distills nothing forth of waxe, besides an oily substance and a little *phlegma*, yet portion of this oily substance, presently concreats into a certaine butter-like matter, which therefore would be distilled over againe; you may draw $\text{℥} \text{vj}$, or viij . of oyle, from one pound of waxe.

This oyle is effectually against Contusions, and also very good against cold affections.

How to make
oyle of waxe.

The faculties
thereof.

CHAP. XV.

Of extracting of oyles out of the harder sorts of Gummes, as myrrhe, mastich, frankincense and the like.

SOME there be who extract these kinds of oyles with the Retort set in ashes or sand, as we mentioned in the former Chapter of oyles of more liquid gums, adding for every pound of gumme two pints of *Aqua vita*, and two or three ounces of oyle of Turpentine, then let them infuse for eight or ten dayes in *Balneo Maria*, or else in horse dung; then they set it to distill in a Retort. Now this is the true manner of making of oyles of Myrrhe; Take Myrrhe made into fine poulder, and therewith fill hard Egges in stead of their yoalkes being taken out; then place the Egges upon a gridiron, or such like grate in some moist place as a cellar, and set under them a Leaden earthen panne; the Myrrhe will dissolve into an oilely water, which being presently put into a glasse and well stopped, with an equall quantitie of rectified *aqua vita*, and so set for three or foure monthes in hot horse dung, which past the vessel shall be taken forth, and so stopped that the contained liquor may be poured into an Alembicke, for there will certaine groffe settling by this meanes remaine in the bottome, then let your Alembicke in *Balneo* and so draw off the *aqua vita* & phlegmaticke liquor, and there will remaine in the bottome a pure & cleare oyle, whereto you may give a curious colour by mixing therewith some Alkanet, and a smell by dropping thereinto a little oyle of Sage, Cinnamon or cloves.

How to make
oyle of
myrrhe.

How to give
it a pleasing
colour and
smell.

Now let us shew the composition and manner of making of balsames by giving you one or two examples; the first of which is taken out of *Vesalius* his Chirurgery, and is this.

℞. terebinth. opt. lb. j. ol. laurini ℥iiij. galbani, ℥iij. gum. elem. ℥iiij. S. thuris, Myrrha, gum. hedera, centaur. majoris, ligni aloës, an. ℥iij. galanga, caryophyll. consolida majoris, Cinamoni, nucis moschat. zedoaria, zinzib. dictamn. albi, an. ℥j. olei vermium terrestrum, ℥ij. aq. vite lb. vj.

Vesalius his
balsame.

The manner of making it is this, let all these things be beaten and made small, and so infused for three dayes space in *aqua vita*, then distilled in a Retort just as wee said, you must distill oyle of Turpentine and waxe. There will flow hence three sorts of liquors, the first watrish and cleare, the other thicke, and of pure golden colour; the third of the colour of a Carbuncle, which is the true Balsame. The first liquor is effectually against the weaknesse of the stomacke coming of a cold cause, for that it cuts flegme and discusses flatulencie; the second helps fresh and hot bleeding wounds, as also the palsie. The third is chiefly effectually against these same effects. The composition of the following Balsamum is out of *Fallopian*; and is this. *℞. terebinth. clara, lb. ij. olei de semine lini lb. j. resinae pin. ℥vj, thuris, myrrha, aloës, mastiches, sarcocolle, an. ℥iij. macis, ligni Aloës, an. ℥j.*

Fallopian his
balsame.

Aaaaa 2

croci,

eroci, 35. Let them all be put in a glasse Retort, set in ashes and so distilled. First there will come forth a cleere water; then presently after, a reddish oyle, most profitable for wounds.

What frankincense is.

The faculties thereof.

Now you must know that by this meanes, we may easily distill all Axungia's, fatts, parts of creatures, woods, all kinds of barks and seeds, if so bee that they be first macerated as they ought to bee, yet so that there will come forth more watry than oyley humidity. Now for that wee have formerly frequently mentioned *thus* or frankincense, I have heere thought good out of *Theriacs* Cosmography to give you the description of the tree from which it flowes. The frankincense tree (saith hee) growes naturally in *Arabia*, resembles a pine, yeelding a moisture that is presently hardened, and it concretes into whitish cleare graines, fatty within, which cast into the fire, take flame. Now frankincense is adulterated with pine-rosin and Gumme, which is the cause that you shall seldome finde that with us, as it is here described; you may finde out the deceit as thus, for that neither Rosin nor any other gumme takes flame, for Rosin goes away in smoake, but frankincense presently burnes. The smell also bewrayes the counterfeite, for it yeelds no gratefull smell as frankincense doth. The *Arabians* wound the tree that so the liquor may the more readily flow forth, whereof they make great gaine. It fills up hollow Vleers and cicatrizes them, wherefore it enters as a cheefe ingredient into artificiall balsame; frankincense alone made into powder and applyed, stanches the blood that flowes out of wounds.

Mathiolus saith, that it being mixed with Fullers earth, and oyle of Roses, is a singular remedy against the inflammation of the breasts of women, lately delivered of child.

CHAP. XVI.

The making of oyle of Vitriall.

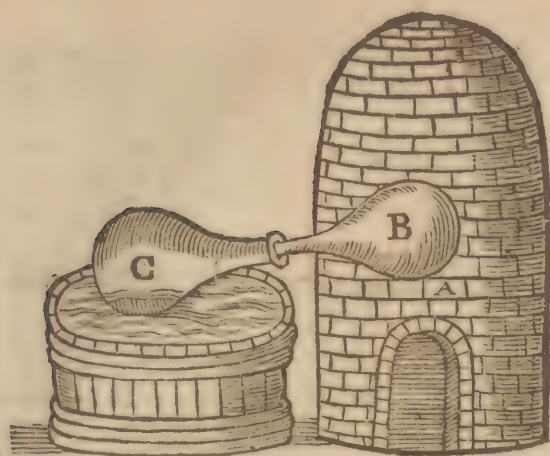
The signe of perfectly calcined vitrioll.



Take ten pounds of Vitrioll, which being made into powder, put it into an earthen pot, and set it upon hot coales, untill it be calcined, which is when as it becomes reddish; after some five, or sixe houres, when as it shall bee thoroughly cold, breake the pot, and let the vitrioll be againe made into powder, that so it may be calcined againe, and you shall doe thus so often and long untill it shall be perfectly calcined, which is when as it shall be exactly red; then let it be made into powder, and put into an earthen Retort, like that wherein *aqua fortis* is usually drawne, adding for every pound of your calcined vitrioll of tile shreds, or powdered bricke 1 quarter; then put the Retort furnished with its receiver into a fornace of Reverberation, alwayes keeping a strong fire, and that for the space of 48 houres, more or lesse according to the manner and plenty of the distilling liquor. You shall know the distillation is finished when as the receiver shall begin to recover his native perspicuity, being not now filled with vaporouse spirits, wherewith as long as the humor distills it is replenished and lookes white.

Now for the receiver there are 2 things to be observed. The first is, that it bee great and very capacious, that it may not be distended and broken by the abundant flowing of vaporous spirits, as it doth oft times happen; another thing is, that you set it in a vessell filled with cold water, least it should be broken by being over hot; you may easily perceive all this by the ensuing figure.

A Furnace or Reverberation furnished with his Retort and Receiver.



A. Shewes the Furnace.

B. The Retort.

C. The Receiver.

D. The vessell filled with cold water.

CHAP. XVII.

A table or Catalogue of medicines and instruments serving for the cure of Diseases.

Medicines and medicinall meates fit for the cure of diseases, are taken from living Creatures, plants and mineralls. From living creatures are taken,

| | |
|---|-------------------------|
| Hornes. | Bones. |
| Hooves. | Extreameparts. |
| Haires. | Hearts. |
| Feathers. | Liver. |
| Shells. | Lungs. |
| Sculles. | Braine. |
| Scailes. | Wombe. |
| Sweates. | Secundine. |
| Skinnes. | Testicles. |
| Fatts. | Pizle. |
| Flesh. | Bladder. |
| Blood. | Sperme. |
| Entrailes. | Taile. |
| Urine. | Coats of the Ventricle. |
| Smells whether they be stincking or sweete, as | Expirations. |
| also poysons: whole creatures themselves, | Bristles. |
| as, | Silke. |
| Foxes. | Webbes. |
| Whelpes. | Tears. |
| Hedgehogs. | Spittle. |
| Frogs. | Honey. |
| Wormes. | Waxe. |
| Crabs. | Egges. |
| Cray-fishes. | Milke. |
| Scorpions. | Butter. |
| Horseleaches. | Cheese. |
| Swallowes. | Marrow. |
| Dungs. | Rennet. |
| From Plants, that is, Trees, shrubs, and hearbes are taken, | Buds. |
| Roots. | Stalkes. |
| Mosse. | Leaves. |
| Pith. | Floures. |
| Sions. | |

Cups.
 Fibers, or hairy threds.
 Eares.
 Seeds.
 Barke.
 Wood.
 Meale.
 Juices.
 Teares.
 Oyles.

Mettalls, or mineralls, are taken either from the water, or earth, and are either kinds of earth, stones, or mettalls, &c.

The kinds of earth are,
 Bole Armenicke.
 Terra figillata.
 Fullers earth.
 Chaulke.
 Okar.
 Plaster.
 Lime.

Now the kinds of stone are,

Flints.
 Lapis judaicus.
 Lapis Lyncis.
 The Pumice.
 Lap. Hamatites.
 Amiantus.
 Galactites.
 Spunge stones.
 Diamonds.

Gums.
 Rosins.
 Rottennesses.
 Masse or spissament. Manna, which falling
 downe like dew upon plants, presently con-
 creates.
 whole plants, as
 Mallows.
 Onions, &c.

Saphire.
 Chrysolite.
 Topace.
 Loadstone.
 The Pyrites or fire-stone.
 Alabaster.
 Marble.
 Cristall, and many other precious stones.
 The kinds of Salts as well naturall as artifi-
 are,
 Common salt.
 Sal nitrem.
 Sal Alkali.
 Sal Ammoniacum.
 Salt of Urine.
 Salt of tartar and generally all salts that
 may be made of any kind of plants.

Those that are commonly called mineralls are,

Marchasite.
 Antimony.
 Muscovy Glasfe.
 Tutty.
 Arsnicke.
 Orpiment.
 Lazure, or blew,
 Rose agar.
 Brimstone.
 Quicke silver,
 White Coprose,
 Chalcitis,
 Psory.
 Roman Vitrioll
 Colcothar, vitrioll, or greene Coprose.

Alumen scissile, Common Alome,
 Alumen rotundum. Round Alome.
 Alumen liquidum.
 Alumen plumosum.
 Boraxe, or Burrace,
 Bitumen,
 Naphtha.
 Cinnabaris, or Vermillion.
 Litharge of Gold.
 Litharge of Silver
 Chrysocolia.
 Scandaracha.
 Red Lead.
 White Lead, and divers other

Now the Mettalls themselves are,

Gold,
 Silver,
 Iron,
 Lead,
 Tinne,

Brasse,
 Copper,
 Steele.
 Lattin and such as arise from these, as the
 scailles, verdegreace, rust, &c.

Now from the waters, as the Sea, Rivers, Lakes and Fountaines, and the mud of these waters, are taken divers medicines, as white and red Corral, Pearles and infinite

finite other things which nature the handmayd of the great Architect of this world, hath produced for the cure of diseases; so that into what part soever you turne your eyes, whether to the surface of the earth, or the bowels thereof, a great multitude of remedies present themselves to your view. The choyse of all which is taken from their substance, or quantity, quality, action, place, season, smell, taste, site, figure, and weight, other circumstances, as *Sylvius* hath abundantly shewed in his booke written upon this subject. Of these simples are made diverse compositions; as,

Collyria.
Caputpurgia.
Eclegmata.
Dentifrices.
Dentiscalpia.
Apophlegmatismi.
Gargarismes.
Pills.
Boles.
Potions.
Emplaisters.
Vnguents.
Cerates.
Liniments.
Embrocations.
Fomentations.
Epithemes.
Attractives:
Resolvers:
Suppuratives:
Emollients.
Mundificatives:
Incarnatives.
Cicatrisers.
Putrifiers.
Corrosives.
Agglutinatives.
Anodynes.
Apozemes.
Iuleps.
Syrupes.
Powders.
Tablets.

Opiates.
Conserves.
Preserves.
Confections.
Rowles.
Vomits.
Sternutatories.
Sudorifickes.
Glysters.
Pessaries.
Suppositories:
Fumigations.
Trochiscs.
Frontalls.
Cappes.
Stomichers.
Bagges.
Bathes.
Halfe-bathes.
Virgins-milke.
Fuci.
Pications.
Depilatories.
Vesicatories.
Potentiall canterias.
Nose-gayes.
Fannes.
Cannopies, or extended cloathes to make winde.
Artificiall fountaines, to distill or droppe downe liquors.

Now these that are thought to be nourishing medicines are,

Restauratives
Cullisses
Expressions
Gellyes
Ptisans
Barly-creames
Ponadoes
Almond-milkes
Marchpaines
rasers
Hydro sacchar
Hydromel and such other drinkes.
Mucilages
Oxymel
Oxycrate

Rose Vinegar
Hydrælium
Metheglin
Cider
Drinke of Servisses
Ale
Beere
Vinegar.
Verjuice
Oyle
Steeled water
Water brewed with bread crummes
Hippocras
Perry, and such like.

Waters

Waters and distilled oyles, and divers other Chymicall extractions.

As the waters and oyles of hot, dry and aromaticke things, drawne in a copper Alembicke, with a cooler, with ten times as much water in weight as of hearbes; now the hearbes must be dry, that the distillation may the better succcede.

Waters are extracted out of flowres put in a Retort, by the heate of the Sunne, or of dung, or of an heape of pressed out Grapes, or by *Balneo*, if there bee a receiver put and closely luted thereto. All kinds of salt of things calcined, dissolved in water, and twise or thrise filtered, that so they may become more pure and fit to yeeld oyle.

Other distillations are made either in Cellars by the coldnesse or moysture of the place, the things being layd either upon a marble, or else hangd up in a bagge; and thus is made oyle of Tartar, and of salts, and other things of An aluminous nature.

Bones must bee distilled by descent, or by the joyning together of vessels. All woods, rootes, barks, shells of fishes, and seedes, or graines, as of corne, broome, beanes, and other things whose juice cannot be got out by expression, must bee distilled by descent, or by the joyning together of vessels in a Reverberatory fornace.

Mettalls calcined and having acquired the nature of salt, ought to bee dissolved and filtered, and then evaporated till they bee dry; then let them bee dissolved in distilled vinegar, and then evaporated and dried againe, for so they will easily distill in a Cellar upon a Marble, or in a bagge. Or else by putting them into a glassie retort, and setting it in sand, and so giving fire thereto by degrees untill all the watery humidity be distilled; then change the receiver, and lute another close to the Retort, then encrease the fire above and below, and thus there will flow forth an oyle very red coloured; Thus are all metalline things distilled, as Alomes, salts, &c.

Gummes *axungia*, and generally all rosins are distilled by retort set in an earthen vessell filled with Ashes upon a fornace; now the fire must be encreased by little and little according to the different condition of the distilled matters.

The vessels and Instruments serving for distillations are commonly these.

Bottomes of Alembickes.

The heads of them, from whence the liquors droppe.

Refrigeratories.

Vessels for sublimation.

For Reverberation.

For distilling by descent.

Crucibles and other such.

Vessels for Calcination.

Haire strainers.

Bagges.

Earthen platters.

Vessels for circulation, as

Pellicanes.

Earthen Basons for filtering:

Fornaces.

The secret furnaces of Philosophers:

The Philosophers egge:

Cucurbites

Retorts

Bolt heads

Vrinalls

Receivers

Vessels so fitted together that the lowermost receives the mouth of the uppermost, whence they may bee termed conjoynd Vessels: They are used in distilling *per descensum*.

Marbes exquisitly smooth for distillations to be made in Cellars.

Pots to dissolve calcined mettalls in.

A CATALOGVE OF THE Chirurgions Instruments mention- ed in this whole worke.

- R**ings wherein little Lancets lye hid, to open Impostumes.
Trunkes or hollow Instruments going with springs.
A vent, or cooler for the wombe made like a pessary.
Hollow tents.
Sundry Cauteries, as flat round, sharpe pointed, cutting, &c.
Constrictory rings to twitch or binde the Columella.
- Oris.*
Ocul.
Ani.
Vteri.
- A ranke or pipe with an actuall Cautery in it.
Crooked Knives.
A pipe in forme of a quill.
Divers trusses with one, or more boulders.
A shoulder-band to bee put about the necke, to hold up a trusse.
A needle to draw through a golden wire, &c.
Pipes with fenestells, and needles fit for futures.
Cutting mullers.
Mullers onely to hold and not to cut.
Mullers to take forth splinters of bones.
Mullers to draw teeth.
An incision knife.
Scrapers to plaine or smooth the bones, or else to cut them.
Cutting or hollow Scrapers.
A Leaden mallet to drive the scrapers or Chissels into the scull.
A Gimblet in shape and use resembling that which Coopers use to list up the sunke staves of their caske withall.
Levatories, of which kind is the three footed one.
Other Levatories, which taken by their handles, and their tongues put under the deprest bones, list them up.
Sawes.
A desquamatory Trepan.
Pliers to take forth splinters of bones.
A Gimblet to perforate the scull.
A Trepan fit to divide the scull, with the screw, peirnt or procer, brace, and
- cover or cap that keepe it from running in too farre.
A plate to set one foote of the compasse upon.
A cutting paire of Compasses both open and shut.
A fit instrument to depresse the *Dura Mater* without hurting thereof.
A syring to make injection withall.
A paire of Pincers with holes through them to take up the skinned for making a Seton.
Setons as well dry, as moistened with oyntments.
Crowes, }
Parrots, }
Swans, } Beakes, and } straight,
Duckes, } these either } crooked,
Lizards, } } toothed, or
Cranes, } } smooth.
Catch-bullets, and Pliers to draw forth peices of maile, and splinters of bones that lye deepe in.
Hollow and smooth Dilaters, diversly made for the different wounds of the parts.
Probes fit for to put flamulaes into wounds, and these either straight, or crooked, perforated, or unperforated.
Screwed mullets to draw forth barbed heads of Arrows and the like.
Lancets to let blood, and scarrifie as well straight, as crooked.
A *Pynicos*, or Matter-drawer.
Ligatures, bands, swathes, thongs of Leather, woollen, linnen, round, flit, sowne together; againe some are upper binders, others under binders.
Again these are either expressing, or else containing, and that either the applyed medicines, or the lips of wounds, or members put in a fit posture, which therefore they call a sarcoticke Ligature.
Thred.
Bottomes, or clewes of thred, or yarne.
Pledgets, compresses, boulders, doubled cloathes.
Ferula, or Splints.
Casses.
Boxes.

- Iunckes.
 Glossocomies.
Ambi, a kinde of Glossocomie.
 A pully, with its wheeles, and wooden
 and Iron pinnes, whereon the wheeles
 may runne:
 Ropes aswell to draw and extend, as hold
 up the member, &c.
 Screw pins.
 A hand-vice.
 Hookes.
 Buttons or stayes to fasten to the skinne
 to hold together the lippes of the
 wounds.
 Linte.
 Cushions, pillowes, linnen cloathes.
 Files.
Dentiscalpia, *Dentifricia*, *Dentispicia*.
 Catheters, guiders of the worke:
 A bathing chaire or seat, bathing tubbes,
 halfe tubs, caldrons, funnells, with all
 other circumstances belonging to a
 bath.
 Stoves, or hot houses to sweate in.
 Cockes to turne and let out water.
 A Gimblet to breake the stone.
 Hookes.
 Hollow probes slit on their upper sides.
 Winged Instruments to draw forth
 stones.
 An instrument to cleanse the bladder.
 Spathulaes straight and crooked.
 Cupping-glasses.
 Hornes.
 Pipes or catheters to weare Caruncles.
 Artificiall members, as eyes of gold en-
 amelled, &c.
 An Vrinall, or case to save the water in.
 An artificiall yard.
 Crutches.
 Nipples, or leaden covers for sore breasts.
 Griffins tallents to draw forth a *Mola*, out
 of the wombe:
 A sucking glasse to draw a breast withall.
 Pessaries, both long and ovall.
 Syringes to give glisters, as also to make
 injection into the eares, and wombe.

THE



THE EFFIGIES OF HIPPOCRATES OF
COOS, THE PRINCE OF
PHYSITIONS.



NVICTVM (Hippocrates) quod te potuere superba

Eoi nunquam flectere Regis opes,

Cecropidae fronti ex auro fulgente coronam

Promeriti memores imposuere tuae.

Gratia sed levis est, Acteis tantus Athenis

Nec fuit hinc uni quam tibi partus honos.

Nam quod qua recreent languentia corpora morbo

Peonias fueris promere largus opes.

Sed tua tam fundit, quam magni machina mundi

Gratia, & insignis tam tua fama volat.

BON. GRA. PARIS. MEDIC.

SELECT

SELECT APHORISMES CONCERNING CHIRVRGE-

rie, collected out of the Aphorismes
of the great *Hippocrates*.

Aph. 27. sect. 6.

VV Whosoever being suppurate or hydropicall, are burnt, or cut therefore, if all the matter, or water flow forth at once, they certainly dye.

31. 6.

The drinking of wine, or a bath, fomentation, blood-letting, or purging, helpe the paines of the eyes.

38. 6.

Such as have hidden, or not ulcerated Cancers, had better not to cure them. For healed they quickly dye, not cured they live the longer.

55. 6.

Gouty paines usually stirre in the Spring and Fall.

28. 6.

Eunuches are not troubled with the Goute, neither doe they become bald.

49. 6.

Whosoever are troubled with the Goute, have ease in forty dayes, the inflammation ceasing.

66. 5.

In great and dangerous wounds if no swelling appeare, it is ill.

67. 5.

Soft tumors are good, but crude ones ill.

25. 6.

For an *Erysipelas*, or inflammation to returne from without inwards, it is not good; but to come from within outwards, is very good.

19. 7.

An *Erysipelas* comming upon the baring of a bone, is evill.

20. 7.

Putrefaction, or suppuration comming upon an *Erysipelas*, is ill.

21. 6.

If *Varices* or *Hæmorrhoides* happen to such as are mad, their madnesse ceases.

21. 7.

A fluxe of blood ensuing upon a great pulsation in Vlcers is ill.

26. 2.

It is better that a feaver happen upon a convulsion, than a convulsion upon a feaver.

4. 6.

Those Vlcers that have the skinn smooth or shining about them, are evill.

48. 6.

The wound is deadly whereby the bladder, braine, heart, midriffe, any of the small Guts, stomacke or Liver are hurt.

45. 6.

Whatsoever Vlcers are of a yeares continuance or more, the bone must necessarily scaille, and the scarres become hollow.

2. 7.

The bone being affected, if the flesh be livide, it is ill.

14. 7.

Stupidity and lacke of reason, upon a blow of the head, is evill.

24. 7.

A *Delirium* happens if a bone (to wit, the scull) bee cut even to the hollownesse thereof.

Whilest

Whilst Pus, or matter is in generating, paines and feavers happen rather than when it is already made.

Cold things are hurtfull to the bones, teeth, nerves, braine, spinall marrow, but hot things are good.

Two paines infesting together, but not the same place, the more vehement obscures the other.

A corruption and abscesse of the bone is caused by the corruption of the flesh.

A livid or dry Ulcer, or yellowish, is deadly.

When as a bone, or gristle, or nerve, or small portion of the cheek, or the prepuce is cut asunder, it neither encreases, nor grows together.

If any of the small guts be cut, it knits not againe.

Those that have the braine sphacelate, that is, corrupt, they dye within three dayes; if they escape these, they recover.

Bleeding at a wound causing a Convulsion, is the foreteller of death.

Cold is biting to Ulcers, hardens the skin, causes paine, not easily coming to sup-
puration; blacknesse, aguish shakings, convulsions, erampes.

Those who have the temples cut, have a Convulsion upon the parts contrary to the section.

Whosoever being suppurate are burnt or cut, if pure and white quitture shall flow forth they escape; but if that which is bloody, feculent, and stinking, then they dye.

It is not fit to take in hand to cure such as are in a desperate case, but to leave them, onely foretelling the end of the disease.

It is better to try a doubtfull remedy than none at all.

FINIS.

Bbbbb

THE

THE EFFIGIES OF GALEN THE
PRINCE OF PHYSITIONS NEXT
TO HIPPOCRATES.



*E*QUVM erat Hippocratem divino è semine Divum,
Orbem muneribus conciliare sibi:
Scripta sed involuit tam multo enigmatè, verum
Vt quamvis solers nullus habere queat;
Pergamei auxilio nisi sint monimenta Galeni,
Qui docta ambages sustulit arte senis.
Ergomacte esto virtute, arcana resolvens,
Quæ nulli fuerant nota (Galene) prius;
Obstringens quæ orbem æterno tibi munere totum,
Æternis sacras te quoq; temporibus.

BON. GRA. PARIS. MEDIC.

RVLES

RVLES OF CHIRVRGERY

BY THE AVTHOR.

PRactice is an operation agreeable to the rules and lawes of the Theory.

Health is not received by words, but by remedies fitly used.

Remedies knowne and approved by use and reason, are to be preferred before such as are unknowne, or but lately found out.

Science without experience gets the Physician no great credit with the patient.

Hee that would performe any great and notable worke, must diligently apply himselfe to the knowledge of his subject.

It is the part of a good Physician to heale the disease, or certainly to bring it to a better passe, as nature shall give leave.

The Chirurgion must be active, industrious, and well handed, and not trust too much to bookes.

He that hath not beene versed in the operations of the Art, nor a frequent auditor of the Lectures of such as are learned therein, and sets forth himselfe for a brave Chirurgion for that hee hath read much, he is either much deceived or impudent.

He shall never doe any thing praise-worthy, that hath got his mastery in Chirurgery by gold, not by use.

You shall comfort the patient with hope of recovery, even when as there is danger of death.

To change Physicians and Chirurgions is troublesome, but not good for the Patient.

Though the disease prove long, yet it is not fit that the Physician give over the patient.

Great wounds of large vessels, are to be judged deadly.

Every contusion must be brought to suppuration.

As the nature or kind of the disease must be knowne, so also must the remedy.

An Abscesse of the bone of the palate, is in danger to cause a stinking breath.

Bleeding caused by heate must be repress by cold.

Wounds of nervous parts require medicines which by the subtlety of the parts may enter in and draw from farre.

It is not fit for such as have Vlcers in their Legges, neither to walke, stand nor sit, but to rest themselves in bed.

All biting and acrid medicines are offensive to cleane Vlcers.

For restoring of dislocations you must hold them fast, stretch them out, and force them in.

A great Gangrene admits no cure, but cutting.

A monster is a thing dissenting from the lawes of nature.

Wounds of the Chest presently become sanious and purulent.

- ²⁵ The wounds made by all venemous creatures are dangerous.
- ²⁶ The south wind blowing, wounded members easily become mortified.
- ²⁷ Such as are wounded, and desire to be quickly whole, must keepe a spare diet.
- ²⁸ Vntemperate bodies doe not easily recover of diseases.
- ²⁹ Round Vlcers unlessse they be drawne into another figure, doe not easily heale up.
- ³⁰ An Erysipelatous Vlcer requires purgation by stooles.
- ³¹ Crying is good for an infant, for it serves in stead of exercise and evacuation.
- ³² Greefe is good for none but such as are very far.
- ³³ Idlenesse weakens and extinguisheth the native heate.
- ³⁴ An ill natured Vlcer yeelds not unlessse to a powerfull remedy.
- ³⁵ A bath resolves and discusses humors, and gently procures sweate.
- ³⁶ Cold diseases are troublesome to old people, and hard to be helped; but in young bodies they are neither so troublesome, nor contumacious.
- ³⁷ Exercised bodies are lesse subject to diseases.
- ³⁸ Moist bodies though they neede small nourishment, yet stand they in neede of large evacuation.
- ³⁹ Sicke people dye sooner of an hot distemper than of a cold, by reason of the quicke and active operation of fire.
- ⁴⁰ The quitture that flowes from an Vlcer is laudible, which is white, smooth and equall.

The end of the twentieth Booke.



HOW TO MAKE REPORTS, AND TO EMBALME THE DEAD.

THE TWENTIEIGHTH BOOKE.



Now it onely remaines that wee instruct the Chirurgeon in making or framing his reporte, or opinion, eyther of the death of any person, or of the weakenesse, or deprivation of any member in the function or execution of its proper office and duty. Herein it is meete that hee be very considerate, that is to say, ingenious or wise in making his report, because the events of diseases are oftentimes doubtfull and uncertaine, neither can any man foretell them certainly, whether they will be for life or death by reason of the manifold nature of the subject of which

Why a Chirurgeon must be carefull in making of Reports.

we speake, and also the uncertaine condition of the humors both in their kind and motion. Which was the cause why *Hippocrates* even in the first of his Aphorismes pronounceth, that judgement is difficult. But first of all, it is very expedient that a Chirurgeon be of an honest mind, that hee may alwayes have before his eyes a carefull regard of true piety, that is to say, the feare of God and faith in Christ, and love toward his neighbours with hope of life everlasting, least that hee being carried away by favour, or corrupted with money or rewards, should affirme or testifie these wounds to be small that are great, and these great that are small; for the report of the wound is received of the Chirurgeon according to the civill Law.

Why judgement is difficult.

It is recorded in the workes of ancient Physitions that wounds may be called great for three respects.

Wounds termed great for three respects.

The first is by reason of the greatnesse of the dissolved unitie or resolution of Continuity, and such are these wounds which made by a violent stroke with a backsword, have cut off the arme, or legge, or overthrow the breast. The second is by reason of the dignitie or worthinesse of the part; now this dignity dependeth on the excellencie of the action; therefore thus any little wound made with a bodkin, knife, in any part whole substance is noble, as in the Braine, Heart, Liver

or any other part whose action and function is necessary to preserve life, as in the Weasant, Lungs or Bladder, is judged great. The third is, by reason of the greatnesse and ill habit, or the abundance of ill humors or debility of all the wounded body, so those woundes that are made in nervous parts, and old decayed people, are sayd to be great. But in searching of wounds let the Chirurgion take heede that he be not deceived by his probe. For many times it cannot goe into the bottome of the wound but stoppeth, and sticketh in the way, either because he hath not placed the patient, in the same posture, wherein he was when he received his hurt; or else for that the stroake being made downe right, slipt aside to the right or left hand, or else from below upwards, or from above downewards, and therefore hee may expect that the wound is but little and will be cured in a short time, when it is like to bee long in curing, or else mortall. Therefore from the first day it behooveth him to suspend his judgement of the wound untill the ninth, for in that time the accidents will shew themselves manifestly, whether they be small or great, according to the condition of the wound, or wounded bodyes, and the state of the ayre according to his primitive qualities, or venomous corruption.

How long a
Chirurgion
must suspend
his judgement
in some cases.

Generall
signes wherby
we judge
of diseases.

But generally the signes, whereby we may judge of diseases, whether they bee great or small, of long or short continuance, mortall or not mortall, are foure. For they are drawne either from the nature, and essence of the disease, or from the cause or effects thereof, or else from the similitude, proportion and comparison, of those diseases with the season or present constitution of the times. Therefore if wee are called to the cure of a greene wound, whose nature and danger, is no other but a simple solution of Continuity in the musculous flesh, we may presently pronounce that wound to be of no danger, and that it will soone be cured. But if it have an Ulcer annexed unto it, that is, if it be sanious, then we may say it will be more difficult and long in the curing; and so we may pronounce of all diseases, taking a signe of their essence and nature. But of the signes that are taken of the causes, let this bee an example. A wound that is made with a sharpe pointed and heavie weapon, as with an halbeard being stricken with great violence, must be accounted great, yea and also mortall if the accidents be correspondent.

Wounds deadly
by the fault
of the ayre.

Signes of a
fractured skull.

Signes of
death by a
wound on the
head.

But if the patient fall to the ground through the violence of the stroake, if a cholerike vomiting follow thereon, if his sight faile him, together with a giddinesse, if blood come forth at his eyes and nostrills, if distraction follow with losse of memory and sense of feeling, we may say; that all the hope of life, remaineth in one small signe which is to be deduced from the effects of the wound. But by the comparing it unto the season that then is, and diseases that then assault mans body, wee may say, that all those that are wounded with gunshot are in danger of death, as it happened in the schismishes at the seige of *Roan*, and at the battall of *Saint Denis*. For at that time, whether it were by reason of the fault of the heavens, or ayre, through the evill humors of mans body, and the disturbance of them; all wounds that were made by gunshot, were for the most part mortall. So likewise at certaine seasons of the yeare, we see the small pockes and meafels breake forth in children, as it were by a certaine pestilent contagion to the destruction of children onely, inferring a most cruell vomit and laske, and in such a season the judgement of those diseases is not difficult. But you by the following signes may know what parts are wounded. If the patient fall downe with the stroake, if he lye senselesse, as it were asleepe, if he voyde his excrements unwittingly, if he be taken with giddinesse, if blood come out at his eares, mouth, and nose, and if he vomit choller, you may understand that the skull is fractured, or pearced through, by the defect in his understanding and discourse. You also may know when the skull is fractured, by the judgement of your externall senses, as if by feeling it with your finger you finde it elevated or depressed beyond the naturall limits, if by striking it with the end of a probe, when the *Pterion* or nervous filme that investeth the skull is cut crosse wise; and so divided there from it, yeeld a base and unperfect sound like unto a pot sheard that is broken, or rather like unto an earthen pitcher that hath a cleft, or rent therein.

But we may say, that death is at hand if his reason and understanding faile him, if he be speechlesse, if his sight forsake him, if he would tumble headlong out of his bed

bed, being not at all able to moove the other parts of his body, if he have a continuall feaver, if his tongue be blacke with drienesse, if the edges of the wound bee blacke or dry, and cast forth no sanious matter, if they resemble the colour of faked flesh, if he have an apoplexie, phrensie, convulsion or pallsie with an involuntarie excretion, or absolute suppression of the Vrine and excrements. You may know that a man hath his throate, that is, his weason and winde pipe cut. First by the sight of his wound, and next by the abolishment of the function or office thereof both wayes, for the patient can neither speake nor swallow any meate or drinke, and the parts that are cut asunder, divide themselves by retraction upwards or downewards one from another, whereof commeth sodaine or present death. You may know that a wound hath pierced into the brest or concavity, of the body, if the ayre come forth at the wound, making a certaine whizzing noyse, if the patient breathe with great difficulty, if he feele a great heavinesse or weight, on or about the midriff, whereby it may be gathered that a great quantity of blood, lyeth on the place or midriff, and so causeth him to feele a weight or heavinesse, which by little and little, will bee cast up by vomiting. But a little after a feaver commeth, and the breath is unsavory, and stinking, by reason that the putrefying blood is turned into *sanies*: the patient cannot lye but on his backe, and he hath an often desire to vomit, but if hee escape death, his wound will degenerate into a Fistula, and at length will consume him by little and little.

Signes that the throate is cut.

Signes that a wound hath pierced in the capacity of the chest.

We may know that the Lungs are wounded, by the foaming and spumous blood, coming out both at the wound and cast up by vomiting; hee is vexed with a greivous shortnesse of breath and with a paine in his sides. We may perceive the Heart to be wounded by the abundance of blood that commeth out at the wound, by the trembling of all the whole body, by the faint and small pulse, palenesse of the face, cold sweate, with often swooning, coldnesse of the extreame parts, and suddaine death.

Signes that the Lungs are wounded.

That the heart is wounded.

When the midriffe (which the Latines call *Diaphragma*) is wounded, the patient feelth a great weight in that place, he raveth and talketh idly, he is troubled with shortnesse of winde, a cough, and fit of greivous paine, and drawing of the entralls upwards. Wherefore when all these accidents appeare, we may certainly pronounce that death is at hand.

The midriffe.

Death appeareth sodainely, by a wound of the hollow Veine, or the great Arterie, by reason of the great and violent evacuation of blood and spirits, whereby the functions of the Heart and Lungs are stopped and hindred.

The Veins and great Artery.

The marrow of the backebone being pierced, the patient is assaulted with a Pallsie or convulsion very suddainely, and sence and motion faileth in the parts beneath it, the excrements of the bladder, are either evacuated against the patients will, or else are altogether stopped.

The spinal marrow.

When the Liver is wounded, much blood commeth out at the wound, and pricking paine disperseth it selfe even unto the sword-like gristle, which hath its situation at the Lower end of the brest bone called *Sternum*: the blood that falleth from thence downe into the intestines doth oftentimes inferre most maligne accidents, yea and sometimes death.

The Liver.

When the stomacke is wounded, the meate and drink come out at the wound, there followeth a vomiting of pure choler, then commeth sweating and coldnesse, of the extreame parts, and therefore we ought to prognosticate death to follow such a wound.

The stomacke

When the milt or spleene is wounded, blacke and grosse blood cometh out at the wound, the patient will be very thirsty, with paine on the left side, and the blood breakes forth into the belly, and there putrifying causeth most maligne and greivous accidents and often times death to follow.

The spleene

When the guts are wounded, the whole body is griped and pained, the excrements come out at the wound, whereat also often times the guts breake forth with great violence.

The guts.

When the reines or Kidnyes are wounded, the patient will have great paine in making his Vrine, and the blood commeth out together therewith, the paine cometh downe even unto the groine, yard, and testicles.

The kidnyes.

When

The bladder.

When the bladder and Vreter are wounded, the paine goeth even unto the entralls; the parts all about, and belonging to the groine are distended, the Urine is bloody that is made, and the same also commeth often times out at the wound.

The womb.

When the wombe is wounded, the blood commeth out at the privities, and all other accidents appeare, like as when the bladder is wounded.

The Nerves.

When the sinewes are pricked or cut halfe asunder, there is great paine in the affected place, and there followeth a suddaine inflammation, fluxe, abscesse, feaver, convulsion, and oftentimes a gangrene or mortification of the part, whereof commeth death, unlesse it be speedily prevented.

Having declared the signes and tokens of wounded parts, it now remaineth that we set downe other signes of certaine kindes of death that are not common, or naturall, whereabout when there is great strife and contention made, it oftentimes is determined and ended by the judgement of the discrete Physition or Chirurgeon.

Signes that
an infant is
smothered,
or over-layd.

Therefore if it chance that a nurse either through drunkennesse, or negligence, lyes upon her infant lying in bed with her, and so stifles or smothers it to death. If your judgement be required, whether the infant dyed through the default, or negligence of the nurse? or through some violent or suddaine diseases that lay hidden and lurking in the body thereof? You shall finde out the truth of the matter by these signes following.

For if the infant were in good health before, if he were not froward or crying, if his mouth and nostrills now being dead, be moystned or bedewed with a certaine foame, if his face be not pale but of a Violet or purple colour; if when the body is opened the Lungs be found swolne and puffed up, as it were with a certaine vaporous foame and all the other entralls found, it is a token that the infant was stifled, smothered or strangled by some outward violence.

If the body or dead corpes of a man be found lying in a field, or house alone, and you be called by a magistrate to deliver your opinion, whether the man were slaine by lightning or some other violent death? you may by the following signes finde out the certaintie hereof.

Signes of such
as are slaine by
Lightning.

For every body that is blasted, or stricken with lightning, doth cast forth or breathe out an unholisome, stinking or sulphureous smell, so that the birdes or fowles of the ayre, nor dogges will not once touch it, much lesse prey or feede on it: the part that was stricken often times found, and without any wound, but if you search it well, you shall finde the bones under the skine to be bruised, broken or shivered in peeces.

Lib. 2. cap. 54.

But if the lightening hath pierced into the body, which making a wound therein (according to the judgement of *Pliny*) the wounded part is farre colder than all the rest of the body. For lightning driverth the most thinne and fiery ayre before it, and striketh it into the body with great violence, by the force whereof the heate that was in the part is soone disperfed, wasted and consumed. Lightning doth alwayes leave some impression or signe of some fire either by ulsion or blacknesse: for no lightning is without fire.

Moreover whereas all other living creatures when they are stricken with lightning fall on the contrary side, onely man falleth on the affected side, if hee be not turned with violence toward the coast or region from whence the lightning came.

If a man bee stricken with lightning while he is asleepe, hee will be found with eyes open; contrarywise, if hee be stricken while hee is awake, his eyes will be closed (as *Plinie* writeth.) *Philip Commynes* writeth that those bodies that are stricken with lightning are not subject to corruption as others are.

Therefore in ancient time it was their custome neither to burne, nor bury them, for the brimstone which the lightning bringeth with it, was unto them in stead of salt, for that by the drynesse and fiery heate thereof it did preserve them from putrefaction.

Also it may be enquired in judgement, Whether any that is dead and wounded,

recei-

received these wounds alive or dead. Truly the wounds that are made on a living man, if he dye of them, after his death will appeare red and bloody, with the sides or edges swollne, or pale round about: contrary wise, those that are made in a dead man, will bee neither red, bloody, swollne, nor puffed up. For all the faculties and functions of life in the body doe cease and fall together by death; so that thenceforth no spirits nor blood can be sent, or flow unto the wounded place. Therefore by these signes which shall appeare, it may be declared that hee was wounded dead or alive.

Signes of wounds given to a living and dead man.

The like question may come in judgement when a man is found hanged, whether he were dead, or alive. Therefore if he were hanged alive, the impression or print of the rope will appeare red, pale, or blacke, and the skinne round about it will be contracted or wrinkled, by reason of the compression which the cord hath made, also often times the head of the *aspera arteria* is rent and torne, and the second spondile, and the necke luxated or mooved out of his place. Also the armes and legges will be pale, by reason of the violent and sodaine suffocation of the spirits: moreover there will be a foame about his mouth, and a foamic and filthy matter hanging out at his nosethrills, being sent thither both by reason that the Lungs are sodainely heated and suffocated, as also by the convulsive concussion of the braine like as it were in the falling sicknesse. Contrariwise, if he be hanged dead, none of these signes appeare: for neither the print of the rope appeares red or pale, but of the same colour as the other parts of the body are, because in dead men the blood and spirits doe not flow to the greeved parts.

Signes whether one be hanged alive or dead.

Whosoever is found dead in the waters, you shall know whether they were throwne into the water alive or dead. For all the belly of him that was throwne in alive, will be swollen, and puffed up by reason of the water that is contained therein; certaine clammy excrements come out at his mouth and nosethrills, the ends of his fingers will be worne and excoriated, because that hee dyed striving and digging or scraping in the sand or bottome of the river, seeking somewhat whereon hee might take hold to save himselfe from drowning. Contrariwise if he be throwne into the waters being dead before, his belly will not be swollne, because that in a dead man all the passages and conduites of the body doe fall together, and are stopped and closed, and for that a dead man breathes not, there appeareth no foame nor filthy matter about his mouth and nose, and much lesse can the toppes of his fingers be worne and excoriated, for when a man is already dead, he cannot strive against death.

Whether one found dead in the water came therein alive or dead

But as concerning the bodies of those that are drowned, those that swimme on the upper part of the water being swollne or puffed up, they are not so by reason of the water that is contained in the belly, but by reason of a certaine vapour, into which a great portion of the humors of the body are converted by the efficacy of the putrifying heate. Therefore this swelling appeareth not in all men which doe perish, or else are cast out dead into the waters, but onely in them which are corrupted with the filthinesse or muddinesse of the water, long time after they were drowned; and are cast on the shore.

But now I will declare the accidents that come to those that are suffocated and stifled or smothered with the vapour of kindled or burning charcoales, and how you may foretell the causes thereof by the history following. In the yeere of our Lord God 1575. the tenth day of May, I with *Robert Greanline* Doctor of Physicke, was sent for by Master *Hamell* an advocate of the Court of Parliament of *Paris*, to see and shew my opinion on two of his servants, of whom the one was his Clarke, and the other his Horse-keeper. All his family supposed them dead, because they could not perceive or feele their Arteries to beate, all the extreame parts of their bodies were cold, they could neither speake nor move, their faces were pale and wanne, neither could they bee raised up with any violent beating or plucking by the haire. Therefore all men accounted them dead, and the question was onely of what kind of death they dyed, for their master suspected that some body had strangled them, others thought that each of them had stopped one anothers winde with their hands: and others judged that they were taken with a sodaine apoplexie. But I presently enquired whether there had beene any fire made with Coales in the house lately,

Of such as are smothered by Charcoales.

where.

whereunto their master giving care, sought about all the corners of the chamber (for the chamber was very little and close) and at last found an earthen panne with charcoale halfe burned; which when we once saw, we all affirmed with one voyce, that it was the cause of all this misfortune, and that it was the maligne fume and venomous vapour, which had smothered them, as it were by stopping the passages of their breath. Therefore I put my hand to the regions of their hearts, where I might perceive that there was some life remaining by the heat and pulsation that I felt though it were very little, wherefore we thought it convenient to augment and encrease it. Therefore first of all, artificially opened their mouthes, which were very fast closed, and sticking obstinately together; and thereinto both with a spoone and also with a silver pipe, we put *aqua vita* often distilled with dissolved *hiera* and *treacle*; when we had injected these medicines often into their mouthes, they began to moove and to stretch themselves, and to cast up and expell many viscus excrementall and filthy humors at their mouth and nostrills, and their Lungs seemed to be hot, as it were in their throates.

Therefore then we gave them vomitories of a great quantity of *Oxymel*, and beate them often violently on the last spondill of the backe, and first of the loynes, both with the hand and knee (for unto this place the orifice of the stomacke is turned) that by the power of the vomitory medicine, and concussion of the stomacke, they might be constrained to vomit. Neither did our purpose faile us, for presently they voided clammy, yellow and spumous sicke and blood.

But wee not being content with all this, blowed up into their nostrills our of a Goose quill, the powder of *Euphorbium*, that the expulsive faculty of the braine might be stirred up to the expulsion of that which oppressed it; therefore presently the braine being shaken, or mooved with sneezing and instimulated thereunto by rubbing the chymicall oyle of *mints* on the pallate and on the cheekes, they expelled much viscus and clammy matter at their nostrills.

Then we used frictions of their armes, legges, and backe-bones; and ministered sharpe glisters, by whose efficacie the belly being abundantly loosened, they beganne presently to speake and to take things that were ministered unto them of their owne accord, and so came to themselves againe.

In the doing of all these things, *James Guillemeau* Chirurgion unto the King, and of *Paris*, and *John* of *Saint Germanes* the Apothecary, did much helpe and further us.

In the afternoone that the matter being well begunne might have good successe, *John Hantie*, and *Lewis Thibaut*, both most learned Physicians, were sent for unto us, with whom we might consult on other things that were to be done. They highly commending all things that we had done already, thought it very convenient that cordials should be ministered unto them, which by ingendering of laudable humors, might not onely generate new spirits, but also attenuate and purifie those that were grosse and cloudy in their bodies. The rest of our consultation was spent in the enquire of the cause of so dire a mischance. For they sayd that it was no new or strange thing, that men may be smothered with the fume and cloudy vapour of burning coales.

Lib. 9. cap. 12.
lib. 22.
A history.

For we reade in the workes of *Fulgosius*, *Volateranus* and *Egnatius*, that as the Emperour *Iovinian*, travelled in wintertime toward Rome, he being weary in his journey, rested at a Village called *Didaftanes*, which divideth *Bithynia* from *Galatia*, where he lay in a chamber that was newly made, and plaistered with lime, wherein they burnt many coales, for to dry the worke or plaistering, that was but as yet Greene on the walls or rooffe of the chamber. Now he dyed the very same night being smothered or strangled with the deadly and poysonous vapour of the burned charcoale, in the midst of the night; this happened to him in the eighth moneth of his reigne, the thirtieth yeere of his age, and on the twentyeth day of August. But what neede we to exemplifie this matter by the ancient histories, seeing that not many yeeres since three servants dyed in the house of *John Bigime* goldsmith, who dwelleth at the turning of the bridge of the Change, by reason of a fire made of coales in a close chamber, without a chimney where they lay. And as concerning the causes, these

these were alleaged. Many were of opinion that it happened by the default of the vapour proceeding from the burned coales, which being in a place voyde of all ayre or wind, inferres such like accidents as the vapour of muste or new wine doth, that is to say, paine, and giddinesse of the head. For both these kinde of vapour besides that they are crude, like unto those things whereof they come, can also very suddenly obstruct the originall of the Nerves, and so cause a convulsion; by reason of the grossnesse of their substance.

For so Hippocrates writing of those accidents that happen by the vapour of new wine, speaketh. If any man being drunken doe suddenly become speechlesse and hath a convulsion, he dyeth unlesse he have a feaver therewithall; or if he recover not his speeche againe when his drunkenesse is over. Sec. 5. Aph. 56

Even on the same manner the vapour of the coales assaulting the braine caused them to be speechlesse, unmoveable and voyde of all sense, and had dyed shortly unlesse by ministring and applying warme medicines into the mouth and to the nostrhells, the grossnesse of the vapour had beene attenuated, and the expulsive faculties mooved or provoked to expell all those things that were noy some; and also although at the first sight the Lungs appeared to be greeved more than all the other parts, by reason that they drew the maligne vapour into the body, yet when you consider them well, it will manifestly appeare that they are not greeved, unlesse it be by the simpaty or affinity that they have with the braine when it is very grievously afflicted.

The prooffe hereof is, because presently after, there followeth an interception or defect of the voyce, sense and motion: which accidents could not bee unlesse the beginning or originall of the nerves were intercepted or letted from performing its function, being burthened by some matter contrary to nature.

And even as those that have an apoplexie doe not dye but for want of respiration, yet without any offence of the Lungs, even so these two young mens deaths were at hand, by reason that their respiration or breathing was in a manner altogether intercepted, not through any default of the Lungs, but of the braine and nerves distributing sense and motion to the whole body and especially to the instruments of respiration. Others contrariwise contended and sayd, that there was no default in the braine, but conjectured the interception of the vitall spirits letted or hindered from going up unto the braine from the heart, by reason that the passages of the Lungs were stopped, to be the occasion that sufficient matter could not be afforded for to perserve and feed the animall spirit. Which was the cause that those young men were in danger of death, for want of respiration, without the which there can be no life.

The occasion
of the death
of such as have
the apoplexie,

For the heart being in such a case, cannot deliver it selfe from the fuliginous vapour that encompasseth it, by reason that the Lungs are obstructed by the grossnesse of the vapour of the coales, whereby inspiration cannot well bee made, for it is made by the compassing ayre drawne into our bodyes: but the ayre that compasseth us doth that which nature endeavourerth to doe by inspiration, for it moderateth the heate of the heart, and therefore it ought to bee endued with foure qualities. The first is, that the quantity that is drawne into the body bee sufficient. The second is, that it be cold, or temperate in quantity. The third is, that it be of a thinne and meane consistence. The fourth is, that it be of a gentle and benign substance.

But these foure conditions were wanting in the ayre which these two young men drew into their bodyes being in a close chamber,

For first, it was little in quantity, by reason that small quantity that was contained in that little close chamber, was partly consumed by the fire of coales, no otherwise than the ayre that is contained in a cupping glasse is consumed in a moment by the flame so soone as it is kindled.

Conditions of
the ayre good
to breath in,

Furthermore it was neither cold nor temperate, but as it were enflamed with the burning fire of coales.

Thirdly, it was more grosse in consistence than it should bee by reason of the admixtion of the grosser vapour of the coales: for the nature of the ayre is so that it

may

may bee soone altered, and will very quickly receive the formes and impressions of those substances that are about it.

Lastly, it was noysome and hurtfull in substance, and altogether offensive to the aery substance of our bodies. For Charcoale are made of greene wood burnt in pits under ground, and then extinguished with their owne fume or smoake, as all Colliers can tell. These were the opinions of most learned men although they were not altogether agreeable one unto another, yet both of them depended on their proper reasons. For this at least is manifest, that those passages which are common to the breast and braine, were then stopped with the grossnesse of the vapour of the coales: whereby it appeareth that both these parts were in fault, for as much as the consent and connexion of them with the other parts of the body is so great, that they cannot long abide sound and perfect without their mutuall helpe by reason of the loving and friendly sympathy and affinitie that is betweene all the parts of the body one with another.

Wherefore the ventricles of the braine, the passages of the lungs and the sleepeie Arteries being stopped, the vitall spirit was prohibited from entering into the braine, and consequently the animall spirit retained and kept in, so that it could not come or disperse its selfe through the whole body, whence happened the defect of two of the faculties necessary for life.

Of the signes
of virginite.

It many times happeneth and is a question too frequently handled concerning womens maidenheads; whereof the judgement is very difficult. Yet some ancient women and Midwives will bragge that they assuredly know it by certaine and infallible signes. For (say they) in such as are virgins there is a certaine membrane or parchment-like skin in the necke of the womb, which will hinder the thrusting in of the finger if it be put in any thing deepe, which membrane is broken when first they have carnall copulation, as may afterwards be perceived by the free entrance of the finger. Besides, such as are deflowred have the necke of their womb more large and wide; as on the contrary, it is more contracted, strait and narrow in virgins. But how deceitfull and untrue these signes and tokens are, shall appeare by that which followeth; for this membrane is a thing preternaturall, and which is scarce found to be in one of a thousand from the first conformation. Now the necke of the womb will be more open or strait according to the bignesse and age of the party. For all the parts of the body have a certaine mutuall proportion and commensuration in a well made body.

Lib. de error.
popul.

Ioubertus hath written, that at *Lecloure* in *Gasconye*, a woman was delivered of a child in the ninth yeare of her age, and that she is yet alive and called *Ioane du Perie* being wife to *Videau Beche* the receiver of the amercements of the King of *Navarre*: which is a most evident argument, that there are some women mote able to accompany with a man at nine yeares old, than many other at fiftene, by reason of the ample capacity of their wombe and the necke thereof; Besides also, this passage is enlarged in many by some accident, as by thrusting their owne fingers more strongly therein by reason of some itching, or by the putting up of a Nodule, or Pessarie of the bignesse of a mans yard, for to bring downe the courses. Neither to have milke in their breasts is any certaine signe of lost virginity; For *Hippocrates* thus writes; But if a woman which is neyther with child, nor hath had one, have milke in her breasts, then her courses have failed her.

Aph. 39. sect.
5.

Lib. 4. de hist.
animal. cap.
20.
Lib. 12. de
subtilis.

Moreover, *Aristotle* reports that there be men who have such plenty of milke in their breasts, that it may be sucked or milked out.

Cardan writes, that he saw at *Venice* one *Antony Bussey* some 30. yeares old, who had milke in his breasts in such plenty, as sufficed to suckle a child, so that it did not onely drop, but spring out with violence like a womans milke. Wherefore let Magistrates beware least thus admonished, they too rashly assent to the reports of women. Let Physitions and Chirurgions have a care least they doe too impudently bring magistrates into an error, which will not redound so much to the judges disgrace, as to theirs.

But if any desire to know, whether one be poysoned, let him search for the Symptomes and signes in the foregoing and particular treatise of poysons. But that this

doctrinae

doctrine of making Reports may be the easier, I thinke it fit, to give presidents, in imitation whereof the young Chirurgion may frame others. The first president shall be of death to ensue; a second of a doubtfull judgement of life and death; the third of an impotency of a member; the fourth of the hurting of many members.

I. A. P. Chirurgion of *Paris*, this twentieth day of May by the command of the Counsell, entred into the house of *John Brossey*, whom I found lying in bed, wounded on his head, with a wound in his left temple, piercing the bone with a fracture and effraction, or depression of the broken bone, scales and *meninges* into the substance of the braine, by meanes whereof, his pulse was weake, he was troubled with raving, convulsion, cold sweate, and his appetite was dejected. Whereby may bee gathered that certaine and speedy death is at hand. In witnesse whereof I have signed this Report with my owne hand.

A certificate
of death,

By the Coroners command I have visited *Peter Lucey*, whom I found sicke in bed, being wounded with a Halbard on his right thigh. Now the wound is of the bredth of three fingers, and so deepe that it pierces quite through his thigh with the cutting also of a veine and Artery, whence ensued much effusion of blood, which hath exceedingly weakned him, and caused him to swoone often; now all his thigh is wolle, livide, and gives occasion to feare worse symptomes, which is the cause that the health and safety of the party is to be doubted of.

Another in a
doubtfull case

By the Iustices command I entred into the house of *James Bersey*, to visite his owne brother; I found him wounded in his right arme, with a wound of some foure fingers bignesse, with the cutting of the tendons bending the legge, and of the Veines, Arteries, and Nerves. Wherefore I affirme that he is in danger of his life, by reason of the malignant symptomes that usually happen upon such wounds, such as are great paine, a feaver, inflammation, abscesse, convulsion, gangrene and the like. Wherefore he stands in neede of provident and carefull dressing, by benefit wherof if he escape death, without doubt he will continue lame, during the remainder of his life, by reason of the impotency of the wounded part. And this I affirme under my hand.

In the losse of
a member.

We the Chirurgions of *Paris*, by the command of the Senate, this twentieth day of March, have visited Master *Lewis Vertoman*, whom wee found hurt with five wounds. The first inflicted on his head, in the middle of his forehead bone, to the bignesse of three fingers, and it penetrates even to the second table, so that we were forced to plucke away three splinters of the same bone. The other was atwart his right cheeke, and reacheth from his care, to the midst of his nose, wherefore wee stitched it with foure stitches. The third is on the midst of his belly, of the bignesse of two fingers, but so deepe that it ascends into the capacity of the belly, so that we were forced to cut away portion of the Kall, comming out thereat, to the bignesse of a walnut, because having lost its naturall colour, it grew blacke and putrified. The fourth was upon the backe of his left hand, the bignesse almost of foure fingers, with the cutting of the Veines, Arteries, Nerves and part of the bones of that part, whence it is, that he will be lame of that hand, howsoever carefully and diligently healed.

Another in
the hurts of
divers parts.

Now because by hurting the spinall marrow, men become lame, sometimes of a legge; it is fit you know that the spinall marrow descends from the braine like a rivelet for the distribution of the Nerves, who might distribute sense and motion to all the parts under the head; wherefore if by hurting the spinall marrow, the patients armes or hands are resolved or numme, or wholly without sense, it is a signe these Nerves are hurt which come forth of the fifth, sixth, seaventh *vertebra* of the necke. But if the same accidents happen to the thigh, legge or foote with refrigeration, so that the excrements flow unvoluntarily, without the patients knowledge, or else are totally supprest, it is a signe that the linewes which proceed from the *vertebra* of the loynes and holy bone are hurt or in fault; so that the animall faculty bestowing sense and motion upon the whole body, and the benefit of opening and shutting to the sphincter muscle of the bladder and fundament, cannot shew its self in these parts, by which meanes suddaine death happens, especially if there be difficulty of breathing therewith.

Ccccc


Be-

A caution in
making report
of a woman
with child be-
ing killed.

Being to make report of a child killed with the mother, have a care that you make a discrete report, whether the childe were perfect in all the parts and members thereof, that the judge may equally punish the author thereof. For he meriteth farre greater punishment, who hath killed a child perfectly shaped and made in all the members; that is, he which hath killed a live childe, than he which hath killed an *Embryon*, that is, a certaine concretion of the spermaticke body. For *Moses* punisheth the former with death, as that he should give life for life, but the other with a pecuniary mulct. But I judge it fit to exemplifie this report by a president.

I A. P. by the Iudges command visited Mistris *Margaret Vinary*, whom I found sicke in bed, having a strong feaver upon her, with a convulsion and efflux of blood out of her wombe, by reason of a wound in her lower belly, below her navill on the right side, penetrating into the capacity of her belly, and the wombe therein; whence it hath come to passe, that she was delivered before her time, of a male childe, perfect in all his members but dead, being killed by the same wound piercing through his scull, into the marrow of the braine. Which in a short time will be the death of the mother also. In testimony whereof I have put my hand and seale.

The manner how to Embalme the dead.

 Had determined to finish this my tedious worke with the precedent treatise of Reports; but a better thought came in my head, which was, to bring man whose cure I had undertaken, from his infancie, to his end, and even to his grave, so that nothing might be heere defective which the Chirurghion might by his profession, performe about mans body either alive, or dead. Verily there hath scarce ever beene a nation so barbarous, which hath not onely beene carefull for the buriall, but also for the Embalming or preserving of their dead bodyes. For the very *Scythians*, who have seemed to exceede other nations in barbarousnesse, and inhumanity, have done this; for (according to *Herodotus*) the *Scythians* bury not the corpes of their King, before that being embowelled and stuffed full of beaten Cyprusse, frankincense, the feedes of Persly, and Annise, hee be also wrapped in pearcloathes. The like care hath also possessed the mindes of the *Ethiopi-ans*; for having disburdened the corpes of their friends, of their entrails and flesh, they plaistered them over, and then having thus rough cast them, they painted them with colours so to expresse the dead to the life; they inclosed them thus adorned in a hollow pillar of glasse, that thus inclosed they might be seene and yet not anoy the spectators with their smell. Then were they kept the space of a yeere, in the hands of their next kindred; who during this space offered and sacrificized to them. The yeare ended, they carryed them forth of the Citty and placed them about the walls each in his proper vault, as *Herodotus* affirms. But this pious care of the dead, did farre otherwise affect the *Egyptians*, than it did other nations. For they were so studious to preserve the memory of their ancestors, that they embalmed their whole body with aromaticke oyntments, and set them in translucent Vnes, or glasse Cells in the more eminent and honoured part of their houses, that so they might have them dayly in their sight, and might be as monuments, and inciters to stirre them up to imitate their fathers and Grandfathers vertues. Besides also the bodyes thus embalmed with aromatick & balsamick oyntments were in steed of a most sure pawn, so that if any *Egyptian* had neede of a great sum of money, they might easily procure it, of such as knew them & their neighbours, by pawning the bodye of some of their dead parents. For by this meanes the creditour was certaine, that he which pawned it would sooner loose his life, than break his promise. But if all things so unhappily succeeded with any, so that through poverty he could not fetch home his pawne againe, but was forced to forgoe it, he was so infamous amongst all men, during the rest of his life, as one banished, or forlorne; and loosing his freedome he shall become a servant, yea scorned and reviled of all men, he should be accounted unworthy to enjoy the light and society of men. And certainly the *Egyptians* understanding the life, which we heere lead, to be of short continuance, comparison being made with that which wee are to live after

The care of
the *Scythians*
in the Embal-
ming their
dead.

The like care
of the *Ethiops-ans*.

Lib. 3,
Of the *Egyptians*.

after the separation of the soule from the body, they were more negligent in building their houses they dwelt in, but in raising the pyramides which should serve them in stead of sepulchers, they were so beyond reason sumptuous and magnificent, that for the building of one of these edifices so renowned over all the world, which King *Cheops* begun, a hundred thousand men were every 3 moneths, for twenty yeeres space there kept at worke: it was five furlongs, and being square, each side was 800. foot long, and so much in height. Almost all the peeces of marble went to the building thereof, were thirty foote long, engraven and carved with various workmanship, as *Herodotus* reports. But before the bodies were committed to these magnificent Sepulchers, they were carryed to the Salters and Embalmers, who for that purpose had allowance out of the publicke stocke. These besmeared them with Aromaticke, and balsamicke oyntments, and sowed up the incisions they made, then strewed them over with salt, and then covered them with brine, for 70. dayes; which being expired, they washed them, being taken thence, and all the filth being taken off, they wrapped them in Cotton cloathes, glewed together with a certaine gumme; then their kinsmen placed them thus ordered in a wooden Coffinne carved like to a man. This was the sacred and accustomed rite of embalming and burying dead bodies amongst the *Egyptians* which were of the richer sort. Our Countrymen the *French* stirred up with the like desire, embalne the bodies of their Kings and Nobles, with spices and sweete oyntments. Which custome they may seeme piously and christianly to have taken from the Old and New Testament, and the ancient and laudible custome of the *Iewes*; for you may reade in the New Testament that *Ioseph* bought a fine linnen cloath, and *Nicodemus* brought a mixture of myrrhe and Aloes about 100. pound weight, that they might embalne and bury the body of *Iesus Christ* our Saviour, for a signe and argument of the renovation and future integrity which they hoped for by the resurrection of the dead. Which thing the *Iewes* had received by tradition from their ancestors. For *Ioseph* in the old Testament commaunded his Physitions, they should embalne the dead body of his father with spices.

The reason of building the *Egyptian* Pyramides:

Lib. 22

Iohn 19, 39:

Gen 50, 2:

The manner of embalming for the long continuance.

But the body which is to be embalmed with spices for very long continuance, must first of all be embowelled, keeping the heart apart, that it may bee embalmed and kept as the kinsfolkes shall thinke fit. Also the braine, the skull being divided with a saw, shall be taken out. Then shall you make deepe incisions alongst the armes, thighes, legges, backe, loynes and buttockes, especially where the greater Veines and Arteries runne, first that by this meanes the blood may be pressed forth, which otherwise would putrifie and give occasion and beginning to putrefaction to the rest of the body; and then that there may be space to put in the aromaticke powders, the whole body shall be washed over with a sponge dipped in *Aqua vita*, and strong vinegar, wherein shall be boyled wormewood, aloes, coloquintida, common salt and Alume. Then these incisions, and all the passages and open places of the body, and the three bellies shall be stuffed with the following spices grossely powdered. *Re. pul. rosar. chamem. melil. balsami, mentha, anethi, satvia, lavender, rorismar. majoran. thymi, absinthij, cyperi, calami aromat. gentiana, ireos florent. assa odorata, caryophyll. nucis moschat. cinamoni, syracis, calamita. benjoini, myrrha, aloes. santal. omnium quod sufficit.* Let the incisions be sowed up and the open spaces that nothing fall out; then forthwith let the whole body be anointed with Turpentine dissolved with oyle of roses and Chamomile, adding if you shall thinke it fit, some Chymicall oyles of spices, and then let it be againe strewed over with the forementioned powder; then wrap it in a linnen cloath, and then in ceare-cloathes.

Lastly, let it be put in a Coffin of Lead, sure souldred and filled up with dry sweete hearbes. But if there be no plenty of the forementioned spices, as it usuall happens in besieged townes, the Chirurghion shall be contented with the powder of quenched lime, common alhes made of Oake wood.

How to embalne bodies when as we want spices.

For thus the body being over and above washed in strong vinegar, or Lie, shall be kept a long time, if so be that a great and dissolving heate doe not beare sway, or if it be not put in a hot and moyst place. And this condition of time and place is the cause why the dead bodies of Princes and Kings, though embalmed with Art and cost,

Why the bodies of our Princes, how well soever embalmed, corrupt in a few dayes.

within the space of fixe or seaven dayes, in which they are kept to bee shewed to the people after their embalming, doe cast forth so greivous a sent, that none can endure it, so that they are forced to be put in a leaden Coffinne. For the ayre which encompasseth them groweth so hot by reason of the multitude of people flowing to the spectacle, and the burning of lights night and day, that the small portion of the native heate which remaineth being dissipated, they easily putrefie, especially when as they are not first moystened & macerated in the liquor of aromaticke things, as the *Egyptians* anciently used to doe, steeping them in brine for 70 dayes, as I formerly told you out of *Herodotus*. I put in minde hereby, use, that so the embalming may become the more dureable, to steepe the bodyes (being embowelled, and pricked all over with sharpe bodkinnes, that so the liquor hindring putrefaction may penetrate the deeper into them) in a wooden tubbe filled with strong vinegar of the decoction of aromaticke and bitter things, as Aloes, Rue, Wormewood, and Coliquintida; and there keepe them for twenty dayes, pouring thereinto eleven or twelve pints of *Aqua vita*. Then taking it forth, and setting it on the fecte, I keepe it in a cleare and dry place. I have at home the body of one that was hanged, which I begged of the Shriffe, embalmed after this manner, which remaines sound for more than 25 yeeres, so that you may tell all the muscles of the right side (which I have cut up even to their heads, and plucked them from those that are next them for distinctions sake, that so I may view them with my eyes, and handle them with my hands as often as I please, that by renewing my memory I may worke more certainly and surely, when as I have any more curious operation to be performed) the left side remaines whole, and the Lungs, Heart, *Diaphragma*, stomacke, spleene, kidneyes, beard, haire, yea and the nailes, which being pared, I have often observed to grow againe to their former bignesse.

And let this be the bound of this our immense labour, and by Gods favour our rest; to whom Almighty, all-powerfull, immortall and invisible, be ascribed all honour and glory for ever, and ever, *Amen*.

Labor improbus omnia vincit!

The end of the Treatise of reports, and
embalming the dead.



THE APOLOGIE AND TREATISE, CONTAINING THE VOYAGES MADE INTO DIVERS PLACES.

BY

AMBROSE PARE of *Laval* in *Maine*, Counsellor
and cheefe Chirurgeon to the King.

THE TWENTYNINTH BOOKE.



Ruely I had not put my hand to the penne, to write on such a thing, were it not that some have impudently injured, taxed, and more through particular hatred, disgraced me, than for zeale or love they beare to the publicke good; which was, concerning my manner of tying the Veines and Arteries, writing thus as followeth.

Of what the
Adversary accu-
seth
ther.

Male igitur & nimium arroganter inconsultus & temerarius quidam, vasorum uisionem post emortui membri resectionem a veteribus omnibus plurimum commendatam & semper probatam damnare ausus est, novum quendam deli-

The words of
the Adversary.

gandi vasa modum, contra veteres omnes medicos sine ratione, experientia & iudicio docere cupiens, nec animadvertis maiora multo pericula ex ipsa vasorum deligatione quam acu partem sanam profunde transfigendo administrari vult, imminere quam ex ipsa uisione. Nam si acu nervosam aliquam partem, vel nervum ipsum pupugerit, dum ita novo & inusitato modo venam absurde conatur constringere, nova inflammatio necessario consequetur, a qua Convulsio & a convulsione cito mors. Quorum symptomatum metu Galenus non ante transversa vulnera suere audebat (quod tamen minus erat periculosum) quam muscilorum aponeuroses denudasset. Adde quod forcipes quibus post sectionem iterum carnem dilacerat, cum retracta versus originem vasa se posse extrahere somniat, non minorem adferant dolorem quam ignita ferramenta adnota. Quod si quis laniatum expertus incolam is evaserit, is Deo optimo maximo cuius Beneficentia crudelitate ista & carnisficina liberatus est, maximas gratias habere & semper agere debet; which is thus: Ill then, and too arrogantly a certaine indiscreet and rash person would blame and condemne the cauterizing of vessells after the amputation of a rotten and corrupted member, much praised and commended and alwayes approved by the Ancients; desiring to shew and teach us without reaton, judgement, and experience, a new way to tye the vessells, against the opinion of the Ancient Physitions, taking no heede, nor being well advised, that there happens farre greater perills, and accidents, through this new way of

tying the vessells (which he will have to be made with a needle, piercing deeply the found part) than by the burning and ustion of the sayd vessells; for if the needle shall pricke any nervous part, yea the nerve it selfe, when he shall by this new and unacustomed way absurdly constraîne the veine by binding it, there must necessarily follow a new inflammation; from an inflammation a convulsion, from a convulsion death: for feare of which accidents, *Galen* never durst sitch transversall wounds, (which notwithstanding were lesse dangerous) before he had discovered the Aponeuroses of the muscles. Moreover the pincers with which after the section, the flesh is againe dilacerated, while he thinkes to draw the vessells out which are drawne in toward their originall, bring no lesse paine than the cauterizing irons doe. And if any one having experimented this new manner of cruelty have escaped danger, he ought to render thanks to almighty God forever, through whose goodnesse he hath beene freed from such tyrannie, feeling rather his executioner than his methodicall Chirurgeon.

The Authors
answers.

O what sweete words are heere for one, who is sayd to be a wise and learned Doctor? he remembers not that his white beard admonisheth him, not to speake any thing unworthy of his age, and that he ought to put off and drive out of him all envie and rancor conceived against his neighbour. So now I will proove by authority, reason and experience, that the sayd Veines and Arteries ought to be tyed.

Authorities.

In the booke
of Fistulae of
the fundament
in the 3. chap.
5. booke 4.
leafe.
2. Treatise
chap. 17.
Treatise 3.
doct. 1. chap. 3

AS for Authorities, I will come to that of that worthy man *Hippocrates*, who wills and commands the cure of Fistula's in the fundament by ligature, as well to consume the callosity, as to avoyd hemorrhagic.

Galen in his method, speaking of a fluxe of blood made by an outward cause, of whom see heere the words, It is (saith he) most sure to tye the roote of the vessell, which I understand to be that which is most neere to the Liver, or the heart.

Avicen commands to tye the veine and the Arterie, after it is discovered, towards his originall.

Guido of Cauliac, speaking of the wounds of the Veines and Arteries, injoyneth the Chirurgeon to make the ligature in the vessell.

In the 3 booke
chap. 4. of the
matter of Chi-
rurgery.
Wounds chap.
12.

Master *Hollier* speaking of a fluxe of blood, commands expressely, to tye the vessells.

In the 26 chap.
of the 5 booke.

Calmethus in the chapter of the wounds in the Veines and Arteries, tells a most sure way to stay a fluxe of blood, by ligature of the vessell.

Celsus from whom the sayd Physition hath snatched the most part of his booke, chargeth expressely, to tye the vessells in a fluxe of blood happening to wounds, as a remedy most easie and most sure.

In the 4. ch. of
the 3 booke.
In the 1 booke
1 treatise.

Vesalius in his Chirurgery, willeth that the vessells be tyed in a fluxe of blood.

John de Vigo treating of a hemorrhagic in bleeding wounds, commands to tye the Veine, and the Artery.

In the 12.
chap. of the 2.
booke.

Tagaultius treating of the meanes to stay a fluxe of blood, commands to pinch the Veine or Artery with a Crow or Parrots bill, then to tye it with a very strong thred.

In the 4. treat.
11 chap. 1.
booke.

Peter of Argillata of *Ballongne*, discoursing of a fluxe of blood, and the meanes to stoppe it, giveth a fourth way expressely, which is made by ligature of the vessells.

In the first
booke 1 lectiz
on 3. chap. 16.
page 5 upon
the 38. ch. of
the booke of
Paul.

John Andreas a Cruce, a *Venetian*, makes mention of a method, to stay a fluxe of blood by the ligature of the vessells.

D' Alechamp commands to tye the Veines, and Arteries.

See then (my little good man) the authorities which command you to tye the vessells. As for the reasons, I will debate of them.

In the booke 2.
ch. of *Angealoz-
gie*, leale 70.
In the booke
1 ch. of *stiches*,

The hemorrhagic (say you) is not so much to be feared in the section of the Call, as that of the Varices, and the incision of the temporall Arteries, as after the amputation of a member. Now you your selfe command, that in cutting the Varices, the fluxe of blood be stopped by the ligature of the vessells. You command the same, speaking

speaking of the stich, with the amputation and section of the Call, changed by the outward ayre, see heere your owne words: After that must bee considered concerning the Call: for if there be any part corrupted, putrified, withered, or blackish. First having tyed, for feare of a fluxe of blood, you doe not bid afterward to have it cauterized; but to say the truth, you have your eyes shut, and all your senses dulled, when you would speake against so sure a method, and that it is not but through anger, and an ill will. For there is nothing which hath more power to drive reason from her seate, than choler and anger. Moreover when one comes to cauterize the dismembred parts, oftentimes when the eschar comes to fall off, there happens a new flux of blood: As I have seene divers times, not having yet bene inspired by God, with so sure a meanes then, when I used the heate of fire. Which if you have not found, or understood this method in the bookes of the Ancients, you ought not thus to tread it under your feete, and speake unluckily of one who all his life hath preferred the profit of the Common-wealth before his owne particular. Is it not more than reasonable to bee founded upon the saying of *Hippocrates*; upon whose authority you serve your selfe, which is thus? That what the medicament cureth not, the iron doth, and what the iron doth not amend, the fire exterminateth: It is a thing which favours not of a Christian, to fall to burning at the first dash without staying for any more gentle remedies. As you your selfe write, speaking of the conditions required in a Chirurgion to cure well; which passage you borrow from some other place: for that which may bee done gently without fire, is much more commended than otherwise. Is it not a thing which all schooles hold as a Maxime, that we must alwaies begin with most easie remedies, which if they be not sufficient, we must then come to extreame, following the doctrine of *Hippocrates*? *Galen* commands in the place before alledged, to treat or dresse the diseased quickly, safely, and with the least of paine that is possible.

In the chaeter
of burning, 2
booke leafe
206.
In the first
booke leafe
the 5.

Galen in 4.
booke of the
Metb. and in
the booke of
Art of
Hippocrates
Apho. the 6.
booke 1.
In the booke
of *arte parva*.

Let us come now to Reason.

NOW so it is, that one cannot apply hot irons but with extreame and vehement paine in a sensible part, void of a Gangrene, which would be cause of a Convulsion, Feaver, yea oft times of death. Moreover, it would bee a long while afterwards before the poore patients were cured, because that by the action of the fire there is made an eschar, which proceeds from the subject flesh, which being fallen, nature must regenerate a new flesh in stead of that which hath bene burned, as also the bone remaines discovered and bare; and by this meanes, for the most part there remaines an Ulcer incurable. Moreover there is yet another accident. It happeneth that oftentimes the crust being fallen off, the flesh not being well renewed, the blood issueth out as much as it did before. But when they shall be tyed, the ligature falls not off untill first the flesh have very well covered them againe: which is proved by *Galen*, saying, that escharoticke medicines which cause a crust or eschar, whensoever they fall off, leave the part more bare than the naturall habit requires. For the generation of a crust proceeds from the parts subject, and which are scituate round about it, being also burned, as I may say: wherefore by how much the part is burnt, by so much it looseth the naturall heate. Then tell me when it is necessary to use escharoticke medicines, or cauterizing irons? Tis when the flux of blood is caused by erosion, or some Gangrene or putrifaction. Now is it thus? In fresh bleeding wounds there is neither Gangrene nor putrifaction. Therefore, the cauteries ought not to be there applyed. And when the Ancients commanded to apply hot irons to the mouthes of the vessells, it hath not bene onely to stay the flux of blood, but cheefely to correct the malignitie, or gangrenous putrifaction which might spoile the neighbouring parts. And it must be here noted, that if I had knowne such accidents to happen, which you have declared in your booke, in drawing and tying the vessells, I had never bene twice deceived; nor would I ever have left by my writings to posteritie, such a way of stopping a flux of blood: But I writ it after I had seene it done and did it very often, with happy successe. See then what may happen through your inconsiderate counsell, with-

Of what the
eschar is made.

In the 5 booke
of his *Metb.*

Words of the
adversary.

our

Proposition
of the Adversary.

out examining, or standing upon the facility of trying the sayd vessells. For see, heere's your scope and proposition, to tye the vessells after amputation is a new remedy, say you; then it must not be used, it is an ill argument for a Doctor.

In the 5. booke
ch. 26, and in
the 7 booke
ch. 33.

In the ch. of
cutting booke
the 2.

But as for that (say you) one must use fire after the amputation of members, to consume, and drie the putrification, which is a common thing in Gangreenes, and mortifications, that indeed hath no place here, because the practise is to amputate the part above that which is mortified, and corrupted; as *Celsus* writes and commands, to make the amputation upon the sound part, rather than to leave any whit of the corrupted. I would willingly aske you, if when a veine is cut transverse, and that it is very much retracted towards the originall, whether you would make no conscience to burne till that you had found the orifice of the veine, or artery; and if it be not more easie onely with a Crow bill to pinch and draw the vessell, and so tie it? In which you may openly shew your ignorance, and that you have your minde seised with much rancor and choler. We daily see the ligature of the vessells practised with happy successe after the amputation of a part, which I will now verifie by experiences and histories, of those to whom the said ligature hath beene made, and persons yet living.

Experiences.

A notable
history.

THe 16. day of June 1582. in the presence of Master *John Liebaud* doctor in the faculty of Physicke at *Paris*, *Claud Viard* sworne Chirurgion, Master *Mathurin Huron*, Chirurgion of Monsieur de *Sourvray*, and I, *John Charbonell* master Barber Chirurgion of *Paris*, well understanding the *Theoricke*, and *Practicke* of Chirurgery, did with good dexterity amputate the left legge of a woman tormented the space of three yeares with extreame paine, by reason of a great *Caries* which was in the bone *Astragal*, *Cyboides*, great and little *focile*, and through all the nervous parts, through which she felt extreame and intollerable paines night and day: she is called *Mary* of *Hofstel*, aged 28 yeares, or thereabouts, wife of *Peter Herve*, Esquire of the Kitchen to the Lady *Duchesse* of *Vexz*, dwelling in the streete of *Verbois* on the other side *Saint Martin* in the fields, dwelling at the signe of the *Saint Johns* head; where the sayd *Charbonell* cut off the sayd legge, the breadth of foure large fingers below the Knee, and after that he had incised the flesh, and sawed the bone, hee griped the Veine with the Crow bill, then the Artery, then tyed them; from whence I protest to God (which the company that were there, can witnesse) that in all the operation which was sodainely done, there was not spilt one porrenger of blood; and I bid the sayd *Charbonell* to let it bleed more, following the precept of *Hippocrates*, that it is good in all wounds and also in inveterate ulcers, so let the blood runne; by this meanes, the part is lesse subject to inflammation. The sayd *Charbonell* continued the dressing of her, who was cured in two moneths, without any fluxe of blood happening unto her, or other ill accident; and she went to see you at your lodging being perfectly cured.

The operation
of *Charbonell*.

In the 7. sentence
of the
booke of *Vlaccius*.

Another history.

Another history of late memory, of a singing man of our Ladyes Church named master *Cole*, who broke both the bones of his legge which were crasht in divers peeces, insomuch that there was no hope of cure: to withstand a gangrene and mortification, and by consequence death. Monsieur *Helin* Doctor, Regent in the faculty of Physicke, a man of honour and of good knowledge, *Claud Viard*, and *Simon Peter*, sworne Chirurgions of *Paris*, men well exercised in Chirurgery; and *Balthazar* of *Lestre*, and *Leonard de Leschenal*, Master Barber Chirurgions, well experimented in the operations of Chirurgery, were all of opinion to withstand the accidents aforesayd, to make entire amputation of the whole legge, a little above the broken & shivered bones & the torne nerves, veines, arteries; the operation was nimbly done, by the sayd *Viard*, and the blood stancht by the ligature of the vessells in the presence of the sayd *Helin*, and master *Tonfard* great Vicar of our Ladyes Church, and was continually drest by the sayd *Leschenal*, and I went to see him other whiles; he was happily cured without the application of hot irons, and walketh lustily on a wooden legge.

Operation
done by *Viard*.

Another

Another History.

IN the yeare 1583. the 10. day of December, *Toussaine Poffon* borne at *Ronievville*, at this present dwelling at *Beauvais* neare *Dourdan*, having his Legge all ulcered, and all the bones caried and rotten, prayed me for the honor of God to cut off his Legge by reason of the great paine which he could no longer endure. After his body was prepared I caused his legge to be cut off, towre fingers below the rotula of the knee, by *Daniel Powlet* one of my servaats, to reach him and to imbolden him in such workes; and there he readily tyed the vessells to stay the bleeding, without application of hot irons, in the presence of *James Guillemeau* ordinary Chirurgion to the King, and *John Charbonell* master Barber Chirurgion of *Paris*: and during the cure was visited by Master *Laffile* and Master *Courtin* Doctors, Regents in the facultie of Medicine at *Paris*. The said operation was made in the house of *John Gohell* Inkeper, dwelling at the signe of the white horse in the Greve. I will not here forget to say, that the Lady Princeesse of *Montpensier*, knowing that he was poore, and in my hands, gave him money to pay for his chamber and diet. He was well cured, God be prayed, and is returned home to his house with a wooden Leg.

Another History.

A Gangrene happened to halfe of the Legge to one named *Nicholas Mesnager* Aged threescore and sixteene yeares, dwelling in *S. Honores* street, at the signe of the Basket; which happened to him through an inward cause, so that wee were constrained to cut off his Legge to save his life: and it was taken; off by *Anthony Renand*, master Barber Chirurgion of *Paris* the 16. day of December 1583. in the presence of Master *Le Fort*, and Master *La Noüe* sworne Chirurgions of *Paris*; and the blood was stanchd by the Ligature of the vessells, and hee is at this present cured and in health, walking with a wooden Leg.

Another History.

A Waterman at the Port of *Nesse*, dwelling neare *Monsieur de Mas*, Postmaster; named *John Bouffereau*, in whose hands a Musket brake asunder, which broke the bones of his head, and rent and tore the other parts in such sort that it was needfull and necessary to make amputation of the hand two fingers above the wrist: which was done by *James Guillemeau* then Chirurgion in ordinary to the king, who dwelt at that time with me. The operation likewise being redily done, and the blood stancht by the Ligature of the vessells without burning irons: hee is at this present living.

Another History.

A Merchant Grocer dwelling in *S. Denis* street at the signe of the great *Tournois* named the Iudge, who fell upon his head, where was made a wound neare the temporall muscle, where he had an artery opened, from whence issued forth blood with great impetuosity, in so much that common remedies would not serve the turne; I was called thither, where I found Master *Rasse*, Master *Cointeret*, Master *Viard*, sworne Chirurgions of *Paris*, to stay the blood; where presently I tooke a needle and thread, and tyed the arterie, and it bled no more after that, and was quickly cured. Master *Roussellet* can witnesse it, not long since Deacon of your Facultie, who was in the cure with us.

Another History.

A Sergeant of the Chastlet dwelling neare *S. Andrew des Arts*, who had a stroake of a sword upon the throate in the Clackes medow, which cut asunder the jugular

gular veine externe, as soone as he was hurt he put his handkercher upon the wound, and came to looke mee at my house, and when hee tooke away his handkercher the blood leaped out with great impetuosity: I suddainly tyed the veine toward the roote; he by this meanes was stanchd and cured thanks be to God. And if one had followed your manner of stanching blood by cauteries, I leave it to be supposed whether he had beene cured; I thinke hee had beene dead in the hands of the operator. If I would recite all those whose vessells were tyed to stay the blood which have beene cured, I should not have ended this long time; so that me thinkes there are Histories enough recited to make you beleewe the blood of veines and arteries is surely stanchd without applying any actuall cauteries.

DE BARTVS.

He that doth strive against experience;

Daignes not to talke of any learned science.

NOW my little Master, seeing that you reproach me, that I have not written all the operations of Chirurgery in my workes which the Ancients writ of, I should be very sorry for it: for then indeede might you justly call me *Carnifex*. I have left them because they are too cruell, and am willing to follow the modernes, who have moderated such cruelty: which notwithstanding you have followed step by step, as appeareth by the operations here written, extracted from your booke, which you have drawne here and there from certaine ancient Authors, such as follow: and such as you have never practised nor seene.

Booke the 6.
Chap. 4. and 5.
booke 2. chap.
4. booke 3. ch.
9. section 7.

The first operation.

In the 2. booke
of the chap. of
Hypoparisme,
booke 14. ch.
last, of the
Meth.
In the 4. chap.
of the 16.
booke of my
worke.
Booke 6 chap.
7, Booke 2,
chap. 5.

TO inveterate fluxions of the eyes, & Migrimes, *Paulus Aegineta* as also *Albucasis* command to make *Arteriotomie*, see here the words of the same *Aeginete*. You marke the Arteries which are behind the eares, then divide them in cutting to the very bone, and make a great incision the breadth of two fingers; which is the will also of *Actius* that the incision be made tranverse, cutting or incising the length of two fingers, even till that the Artery be found, as you command to bee done in your booke; but I holding the opinion of *Galen*, who commands to dresse the diseased quickly, safely and with the least paine that is possible, I teach the young Chirurgion the meanes to remedy such evils in opening the Arteries behind the eares, and those of the Temples, with one onely incision, as a letting blood, and not to make a great incision and cut out worke for a long time.

The second operation.

In the 2. booke
chap. of *Peri-
scythisme*.

TO fluxions which are made a long time upon the eyes, *Paul Aeginete* and *Albucasis* command to make incision which they call *Periscythismos* or *Augiologie* of the Greekes; and see heere the words of *Paul*. In this operation first the head is shaved, then taking heede of touching the temporall muscles, a transverse incision must bee made, beginning at the left Temple and finishing at the right, which you have put in your booke word for word, without changing any thing: which sheweth openly you are a right wound-maker; as may be scene in the Chapter which you call the Crowne cut, which is made halfe round under the Coronall suture from one temple to the another even to the bone. Now I doe not teach such a cruell kind of remedy, but instruct the operator by reason, authority and notable prooffe of a sure and certaine way to remedy such affections without butchering men in this kind.

In the 26. ch.
of the 9. booke
of my workes.

The third.

Book 6. chap.
44. booke 2.
chap. 3. booke
3. chap. 22.

IN the cure of the *Empyema*, *Paul Aeginete*, *Albucasis* and *Celsus* commanded to apply some 13. others 15. Cauteries to give issue to the matter contained in the breast, as the said *Celsus* in the aforesaid place appointeth for *Albanian* people, which

which is a thing out of all reason (with respect to their honour be it spoken) that since the Chirurgions scope is to give issue to the matter therein contained, there is no other question than to make apertion, to evacuate the matter in the most inferior part, I have shewed the young Chirurgion the meanes to doe it safely, without tormenting the patients for nothing.

The fourth.

IN Paps that are too great, *Paul Aeginet* and *Albucrasis* commands to make a crosse incision, to take out all the fat, and then joynes together the wound by stich: In briefe, it is to flea a man alive, which I have never practised, nor countell it to bee done by the young Chirurgion.

Guido of Cassan
the 2, treatise, Doct. 1.
chap. 1.
Booke 7. chap.
10. booke 6.
chap. 46, booke
2, chap. 47.

The fifth.

Albucrasis and *Paul Aeginet* will cauterize the Liver and the Spleene with hot Irons, which the modernes have never practised, for indeede reason is manifestly repugnant thereunto.

In the first
booke, chap.
22, & 10. also
in booke 2,
chap. 32.
Booke 6, chap.
47, and 48.
In the 3, booke
chap. 1, De
internis mira-
bis Booke 1.
chap. 3. booke
3, sect. 1. chap.
89 booke the
6, chap. 50.
In the 3, booke
12, chap. 6, 7.

The Sixth.

IN the *Paracentesis* which is made in the third kind of Dropsie called *Ascites*, *Celsus Aurelianus* commandeth divers apertions to be made in the belly. *Albucrasis* applies nine actuall cauteries, that is to say, foure about the Navell, one upon the Stomacke, one upon the Spleene, one upon the Liver, two behind the backe upon the spondills, one of them neare the breast, the last neare the Stomacke. *Aetius* is likewise of the same opinion, to open the belly with divers cauteries. *Paul Aeginet* commands to apply five actual cauteries to make the said *Paracentesis*. But abhorring such a kind of burning of which you speake much in your third booke, I shew another kind of practise, the which is done in making a simple incision in the sayd belly, as may be seene in my workes, with happy successe. I doe not teach yong men in my workes the manner of burning, which the Ancients have called *infibulare*, that is not in practise though *Celsus* writeth of it.

The Seventh.

IN the Sciaticke proceeding from an internall cause, and because the viscos humors displace the bones, *Paul* commandsto burne or cauterize the said joynt to the bone: *Diascorides* commands the same, Which I doe not finde expedient, taking indication from the subjacent parts: for there where one would burne, tis in the place of the foure twin muscles, under which passeth the great Nerve descending from the holy bone; which being burnt, I leave it to your censure what might happen, as *Galen* remarketh speaking of the *Vision* which must be made in the shoulder called *humerus*.

In the 7, booke,
chap. 25, booke
6, chap. 16
booke 2, chap,
72, upon the
sentence 49,
of the 1 section
on of the booke
of Arts.

The Eighth.

IN the outward Laxation of the Spondills, *Hippocrates* commands to bind the man right upon a Ladder, the Armes and Legges tyed and bound: then afterwards having raised the Ladder to the top of a tower, or the ridge of an house, with a great rope in a pully, then to let the patient fall plumbe downe upon the hard pavement; which *Hippocrates* sayes was done in his time. But I doe not shew any such way of giving the strapado to men, but I shew the Chirurgion in my workes, the way to reduce them surely, and without great paine. Moreover I should be sorry to follow the saying of the sayd *Hippocrates*, in the third booke *De morbis*, who commands in the disease called *Volvulus* to cause the belly to bee blowne with a paire of Bellows, putting the nozell of them into the *intestinum rectum*, and then blow there

Sentence the
22, and 23, of
the 3 section
of the booke
of the joynts.
chap. 16, of
the 15, booke.

till

till the belly be much stretcht, afterwards to give an emollient glistre, and to stop the fundament with a sponge. Such practise as this is not made now a dayes, therefore wonder not if I have not spoken of it. And you not being contented to patch together the operations of the above said Authors, you have also taken divers in my workes, as every man may know: which sheweth manifestly that there is nothing of your owne in your Chirurgions Guide. I leave out divers other unprofitable operations which you quote in your booke, without knowing what beasts they are, in never having seene them practised; but because you have found them written in the bookes of the Ancients, you have put them into your booke.

Moreover you say that you will teach me my lesson in the operations of Chirurgery, which I thinke you cannot doe: because I have not onely learned them in my Study, and by the hearing for many yeares the lessons of Doctors of Physicke: but as I have sayd before in my Epistle to the Reader, I was resident the space of three yeares in the Hospitall of *Paris*, where I had the meanes to see and learne divers workes of Chirurgery, upon divers diseases, together with the Anatomy, upon a great number of dead bodies, as oftentimes I have sufficiently made triall publickly in the Physitions schoole at *Paris*, and my good lucke hath made mee see much more. For being called to the service of the Kings of France (four of which I have served) I have beene in company at Battells, Skirmishes, assaults, and beleiging of Citties and Fortresses; as also I have beene shut up in Citties with those that have beene beleiged, having charge to dresse those that were hurt. Also I have dwelt many yeares in this great and famous City of *Paris*, where, thanks bee to God, I have lived in very good reputation amongst all men, and have not beene esteemed the least in rancke of men of my profession, seeing there was not any cure, were it never so difficult and great, where my hand and my counsell have not beene required, as I make it appeare in this my worke. Now dare you (these things being understood) say you will teach mee to performe the workes of Chirurgery, since you never went further than your study? The operations of the same are foure in generall (as we have declared heretofore) where you make but three, that is to say, joyne that which is separated, separate that which was conjoynd, and to take away that which is superfluous, and the fourth which I make, is as much necessary as industrious invention, to adde to Nature that which is wanting, as I have shewed heere above. Also it is your will that the Chirurgion make but the three operations above sayd without meddling to ordaine a simple Cataplasme, saying it is that which comes to your part belonging to the Physition: And that the Ancients (in the discourse which you have made to the Reader) have divided the practise of Physick into three kinds, that is to say, Diet, Medicine, and Chirurgery. But I would willingly demand of you, who hath made the partition, and where any thing should be done, who are those which are content with their part, without any enterprize upon the other? For *Hippocrates*, *Galen*, *Atius*, *Avicen*, in briebe, all the Physitions, as well Greekes and Latins as Arabians, have never so treated of the one, that they have not treated of the other, for the great affinitie and tye that there is betweene them two, and it should bee very difficult to doe otherwise. Now when you will vilifie Chirurgery so much, you speake against your selfe; for in your Epistle which you have dedicated to Monsieur of *Martignes*, you say, that Chirurgery is the most noble part of Physicke, as well by reason of the originall antiquity, necessity, as certainty in her actions; for shee workes *Luce aperta*, as learnedly writeth *Celsus* in the beginning of his seaventh booke; therefore it is to be beleevd you never went out of your study, but to teach the *Theorick* (if you have beene able to doe it.)

A faire similitude,

The operations of Chirurgery are learn't by the eye, & by the touch. I will say that you much resemble a yong Lad of Low *Britany*, of plump buttocks, where was stufte sufficient; who demanded leave of his father to come to *Paris*, to take *France*; being arrived the Organist of our Ladys Church, met with him at the Pallace gate, who took him to blow the Organs, where hee was remaining three yeeres: hee saw hee could somewhat speake *French*, he returnes to his father, and told him that he spake good *French*, and moreover he knew well, to play on the Organs: his father received him

very

very joyfully, for that hee was ſo wiſe and learned in ſo ſhort a time. Hee went to the Organift of their great Church, and prayed him to permit his ſonne to play on the Organs, to the end he might know whether his ſonne was become ſo ſkilfull a maſter, as he ſayd he was; which the Organift agreed to very willingly. Being entred to the Organs, he caſt himſelfe with a full leape to the bellowes, the maſter Organift bid him play, and that he would blow; then this good maſter anſweares, Let him play himſelfe on the Organs if he would for him, hee could doe nothing but play on the bellowes. I thinke alſo my little maſter, that you know nothing elſe, but to prattle in a chaire; but I will play upon the keyes, and make the Organs ſound (that is to ſay) I will doe the operations of Chirurgery, that which you cannot in any wiſe doe, becauſe you have not gone from your ſtudy or the ſchools, as I have ſayd before. But alſo, as I have ſayd already in the Epiſtle to the Reader, that the labourer doth little profit by talking of the ſeaſons, diſcourſe of the manner of tilling the earth, to ſhew what ſeedes are proper to each ſoyle; all which is nothing if he put not his hand to the Plough, and couple the Oxen together. So likewiſe is it no great matter if you doe not know the *Practicke*, for a man may execute Chirurgery well, although he have no tongue at all. As *Cornelius Celfus* hath very well remarked in his firſt booke when he ſaith, *Morbos non eloquentia, ſed remedijs curari: qua ſi quis elinguis, uſu diſcretus bene norit, hunc aliquando maiorem medicum futurum, quàm ſi ſine uſu linguam ſuam excoluerit*; that is to ſay, Diſeaſes are not to be cured by eloquence, but by remedies well and duely applyed, which if any wiſe and diſcrete man though he have no tongue know well the uſe thereof, this man in time ſhall become the greater Phyſition, than if without practice his tongue were dipt with oratory; the which you your ſelfe confeſſe in your ſayd booke by a *Tetraſticke* which is thus:

To talke's not all in Chirurgical Art,
But working with the hands.
Aply to dreſſe each greeued part,
And guide, ſire, knife, and bands.

Ariſtotle in the firſt booke of his *Metaphyſicks* the firſt chapter ſaith, Experience is almoſt like unto ſcience, and by the ſame, Art and ſcience have benee invented. And indeed we ſee theſe which are experimented, attaine ſooner to that which they intend, than thoſe which have reaſon and not experience, becauſe that the ſayd experience is a knowledge of ſingular and particular things, and ſcience on the contrary is a knowledge of things univerſall. Now that which is particular is more healeable than that which is univerſall, therefore thoſe which have experience are more wiſe and more eſteemed, than thoſe which want it, by reaſon they know what they doe. Moreover I ſay, that ſcience without experience, bringeth no great aſſurance.

Aleſius a Doctor of *Milan*, boated one day of himſelfe, that his glory was greater and more famous than that of Counſellors, *Preſidents*, maſters of Requeſt: becauſe that it was by his ſcience, and his inſtructions that they became ſuch: but he was anſweared by a Counſellor, that he was like unto a whetſtone, which made the knife ſharpe and ready to cut, not being able ſo to doe it ſelfe, and alledged the verſes of *Horace* that:

*Fungebatur vice rotis, acutum
Reddere qua ferrum valet, exors ipſa ſecandi.*

See you now (my little maſter) my anſwers to your calumniations, and pray you, if you beare a good minde (to the publicke good) to review and correct your booke; as ſoone as you can, and not to hold young Chirurgion in this error by the rea- ding of the ſame, where you teach them to uſe hot irons after the amputation of members, to ſtay a fluxe of blood, ſeeing there is another meanes, and not ſo cruell and more ſure and eaſie. Moreover if to day after an aſſault of a City, where diſ

verse Souldiers have had armes and legges broken, and shot off by Cannon Bullets, Cutlas or other instruments of warre; to stay the fluxe of blood, if you should use hot irons, it would be needfull to have a forge, and much coales to heate them: and also the souldiers would hold you in such horror for this cruelty, that they would kill you like a Calfe, even as in times past they did to one of the chiefeft Chirurgions of *Rome*, which may be found written before in the third chapter of the Introduction of Chirurgery, the 1 booke. Now least the Sectators of your writings should fall into such inconveniencie, I pray them to follow the methode aforesayd, the which I have shewed to be true and certaiue, and approved by authority, reason and experience.

The Voyage of Thurin, 1536.

Moreover, I will heere shew to the readers the places where I have had meanes to learne the Art of Chirurgery, for the better instructing of the young Chirurgion: and first in the yeere 1536, the great King *Francis* sent a great Army to *Thurin*, to recover the Cittyes and Castles, which the Marqueffe of *Guaft*, Lieutenant generall of the Emperour had taken: where the high Constable of *France* the great master, was Lieutenant generall of the Army, and Monsieur de *Montian* Colonel generall of the foote, of which I was then Chirurgion. A great part of the Army arrived in the Country of *Suze*; we found the enemy which stopt the passage, and had made certaine Forts, and trenches, insomuch that to hunt them out and make them leave the place, we were forced to fight, where there were divers hurt and slaine, as well of the one side as of the other: but the enemies were constrained to retire, and get into the Castle, which was caused partly by one Captaine *Ratt*, who climbed with divers of the souldiers of his company upon a little Mountaine; there where he shot directly upon the enemies, hee received a shot upon the ankle of his right foote, wherewith presently he fell to the ground; and sayd then, Now is the *Rat* taken. I dressed him, and God healed him. We entred the throng in the Citty, and passed over the dead bodyes, and some which were not yet dead, we heard them cry under our horses feete, which made my heart relent to heare them. And truely I repented to have forsaken *Paris* to see so pittifull a spectacle. Being in the Citty, I entred into a stable thinking to lodge my owne, and my mans horse, where I found foure dead souldiers, and three which were leaning against the wall, their faces wholly disfigured, and neither saw nor heard, nor spoake; and their cloathes did yet flame with the gunpowder which had burnt them. Beholding them with pittie, there happened to come an old souldier, who asked me if there were any possible meanes to cure them, I told him no: he presently approached to them, and gently cut their throates without choler. Seeing this great cruelty, I told him he was a wicked man, he answered me that he prayed to God, that whensoever he should be in such a case, that he might finde some one that would doe as much to him, to the end he might not miserably languish. And to returne to our former discourse, the enemy was somoned to render, which they soon did, & went out, their lives onely saved, with a white staffe in their hands; the greatest part whereof went and got to the Castle of *Villane*, where there was about 200. Spaniards; Monsieur the Constable would not leave them behind, to the end that the way might be made free. This Castle is seated upon a little mountaine, which gave great assurance to them within, that one could not plant the Ordinance to beate upon it, and were sommoned to render, or that they should be cut in peeces; which they flatly refused, making answer that they were as good and faithfull servants to the Emperour, as Monsieur the Constable could bee to the King his master. Their answer heard, they made by force of arme, two great Cannons to be mounted in the night with cords and ropes, by the Swissers and Lansquenets; when as the ill lucke would have it, the two Cannons being seated, a Gunner by great negligence set on fire a great bagge of Gunpowder; wherewith he was burned together with ten or twelve souldiers; and moreover the flame of the powder was a cause of discovering the Artillery, which made them that all night, they of the Castle did nothing but shoot

The retiring
of the enemies.

History.

Brave answers
of the Souldiers.

shoote at that place where they discovered the two peeces of Ordinance, wherewith they kild and hurt a great number of our people.

The next day early in the morning a Battery was made, which in a few houres made a breach, which being made they demanded to parly with us; but twas too late for them; For in the meane time our French foote, seeing them amazed, mounted to the breach, and cut them all in peeces, except a faire young lusty mayd of *Piedmont*, which a great Lord would have kept and preserved for him to keepe him company in the night, for feare of the greedy wolfe. The Captaine and Easigne were taken alive, but soone after were hanged upon the gate of the Citry, to the end they might give example and feare to the Imperiall souldiers not to bee so rash and foolish, to be willing to hold such places against so great a Army. Now all the sayd souldiers of the Castle, seeing our people comming with a most violent fury, did all their endeavour to defend themselves, they kild and hurt a great company of our souldiers, with Pikes, Muskets, and stones, where the Chirurgions had good store of worke cut out. Now at that time I was a fresh water Souldier, I had not yet seene wounds made by gun-shot at the first dressing. It is true, I had read in *John de Vigo*, in the first booke of wounds in generall, the eighth chapter, that wounds made by weapons of fire did participate of Venenosity, by reason of the powder, and for their cure commands to cauterize them with oyle of Elders scalding hot, in which should be mingled a little Treackle; and not to faile, before I would apply of the sayd oyle, knowing that such a thing might bring to the Patient great paine, I was willing to know first, before I applyed it, how the other Chirurgions did for the first dressing, which was to apply the sayd oyle the hottest that was possible into the wounds, with tents and setons; insomuch that I tooke courage to doe as they did. At last I wanted oyle, and was constrained in steed thereof, to apply a digestive of yolkes of egges, oyle of Roses, and Turpentine. In the night I could not sleepe in quiet, fearing some default in not cauterizing, that I should finde those to whom I had not uled the burning oyle dead impoysoned; which made me rise very early to visit them, where beyond my expectation I found those to whom I had applyed my digestive medicine, to feele little paine, and their wounds without inflammation or tumor, having rested reasonable well in the night: the other to whom was used the sayd burning oyle, I found them feverish, with great paine and tumour about the edges of their wounds. And then I resolved with my selfe never so cruelly, to burne poore men wounded with gunshot. Being at *Thurin* I found a Chirurgion, who had the fame above all others, for the curing of wounds of Gunshot, into whose favour I found meanes to insinuate my selfe, to have the receipt of his balme, as he called it wherewith he dressed wounds of that kind, and hee held me off the space of two yeeres, before I could possible draw the receipt from him. In the end by gifts and presents he gave it me, which was this, to boyle young whelpes new pupped, in oyle of Lillies, prepared earth wormes, with Turpentine of *Venice*. Then was I joyfull and my heart made glad, that I had understood his remedy, which was like to that which I had obtained by great chance. See then how I have learned to dresse wounds made with gunshot, not by bookes. My Lord Marshall of *Montian* remained Lievtenant generall for the King in *Piedmont*, having ten or twelve thousand men in garrison through the Cittyes and Castles, who often combated with swords and other weapons, as also with muskets; and if there were foure hurt, I had alwayes three of them, and if there were question of cutting off an arme or a legge, or to trepan, or to reduce a fracture or dislocation, I brought it well to passe. The sayd Lord Marshall sent me one while this way, another while that way, for to dresse the appointed Souldiers which were beaten aswell in other Citties as that of *Thurin*, insomuch that I was alwayes in the Countrey one way or other. Monsieur the Marshall sent for a Physitian to *Milan*, who had no lesse reputation in the medicinall Art (than the deceased Monsieur le Grand) to take him in hand for an hepaticall flux, whercof at last he dyed. This Physitian was a certaine while at *Thurin* to deale with him, and was often called to visite the hurt people, where he alwayes found me, and I consulted with him, and some other Chirurgions, and when wee had resolved to doe any serious worke of Chirurgery, twas *Ambrose Pare* that put his hand thereto,

Exemplary
punishment.

Counsell of
De Vigo.

Experience of
a bold man
happy successe

Receipt of an
excellent
balme for
wounds with
Gunshot.

Witness of
the dexterity
of the Author.

The death of
Marshall
Montian.

where I did it promptly and with dexterity, and with a great assurance, in so much that the sayd Physition admired me, to see me so ready in the operation of Chirurgery, seeing the small age which I had, One day discoursing with the sayd Lord Marshall, he sayd to him, *Signor, tu hai un Chirurgico giovane di anni, ma egli è vecchio di sapere e di esperienza. Guarda lo bene, perche egli ti fara servizio & bonore.* That is to say, Thou hast a young Chirurgion of age, but he is old in knowledg and experience, preserve him well; for he will doe thee service, and honour. But the old man knew not that I had dwelt three yeares in the Hospitall of *Paris*, there to dresse the diseased. In the end Monsieur *Marshall* dyed with his hepaticall fluxe. Being dead, the King sent Monsieur the Marshall of *Annebaut* to be in his place, who did me this honour to pray me to dwell with him, and that he would use me as well or better, than Monsieur the Marshall *Mountian*; which I would not doe for the greefe I had for the losse of my master who loved me intimately, and I him in the like manner; and so I came backe to *Paris*.

The Voyage of Marolle and of low Britanny, 1543.

The English
retire.

Dances of the
Country
Wenches.

Wrestlers; lit-
tle Britanna
good wres-
tler.

I Went to the Camp of *Marolle*, with the deceased Monsieur *de Rohan*, where King *Francis* was in person, and I was Chirurgion of the company of the sayd Monsieur *de Rohan*. Now the King was advertized by Monsieur *de Estampes*, gouverneur of *Brittany*, that the *English* had hoyste Sayle to land in Low *Brittany*, and prayed him that he would send Monsieur *de Rohan*, and Monsieur *de Laval* for succour, because they were the Lords of that Countrey, and for their sakes those of that Countrey would beate backe the enemy and keepe them from landing. Having received this advertisement, his Majesty dispatched to send the sayd Lords for the releefe of their Countrey, and to each was given as much power as to the Governour; in so much that they were all three the Kings Lieutenants. They tooke willingly this charge upon them, and speedily went away in Poste, and lead me with them to *Landreneau*, there where we found every one in armes, the Alarum bells sounding on every side, yea five or sixe leagues about the Harbors, that is to say, *Brest*, *Conquet*, *Crozon*, *Le Fou Doulac*, *Laudanec*, each of them well furnisht with Artillery, as Cannons, Demy-cannons, Culverins, Sakers, Serpentes, Falcons, Harque buzes, in breefe there was nothing wanting in Artillery, or souldiers aswell *Brittanes* as *French*, to hinder that the *English* made no landing, as they had resolved at their parting from *England*. The enemies Army came unto the very mouth of the Cannon, and when we perceived them that they would land, they were saluted with Cannon shot, and we discovered our men of warre, together with our Artillery: they fled to Sea againe, where I was glad to see their vessells hoise saile againe, which was in a great number and in good order, and seemed like a Forest which marched upon the Sea. I saw a thing also whereat I marveiled much, which was that the bullets of great peeces made great rebounds, and grazed upon the water as upon the ground. Now to make the matter short, the *English* did us no harme, and returned whole and sound into *England*, and left us in peace. We stayd in that Countrey in garrison, till we were assured that their army was dispersed. In the meane time our horsemen exercised their feates of activity, as to run at the ring, fight in duell, and others, so that there was still something to imploy me withall. Monsieur *de Estampes*, to make sport and pleasure to the sayd Monsieur *de Rohan*, and *Laval*, and other gentlemen, caused diverse Countrey wenches, to come to the feasts, to sing songs in the Low *Brittan* tongue, where their harmony was like the croaking of Frogges, while they are in love. Moreover made them dance the *Brittany Triory*, without mooving feete or buttockes, hee made them heare and see much good. Otherwhiles they caused the Wrestlers of the Cittyes, and Townes, to come where there was a Prize for the best, and the sport was seldome ended, but that one or other had a legge or an arme broken, or the shoulder or hippe displaced: there was a little man of Low *Brittany* of a square body and well set, who held a long time the credit of the field, and by his skill, and strength, threw five or sixe to the ground; there came to him a great

great schoolemaster, who was sayd to be one of the best wraflers of all *Brittany*: he entred into the lists, having taken off his long jacket, in hose and doubler and being neere the little man, he seemed as if he had beene tyed to his girdle. Notwithstanding when each of them tooke hold of the collar, they were a long time without doing any thing, and they thought they would remaine equall in force and skill: but the little man cast himselfe with an ambling leape under this great Pedant, and tooke him on his shoulder, and cast him on his Kidneyes spread abroad like a frogge, and then all the company laught at the skill and strength of this little fellow. This great *Dutro* had a great spight, for being cast by so little a man: he rose againe in choler, and would have his revenge. They tooke hold againe of each others collar, and were againe a good while at their hold without falling to ground: in the end this great man let himselfe fall upon the little, and in falling put his elbow upon the pitch of his stomacke, and burst his heart, and kild him starke dead. And knowing he had given him his deathes blow, tooke againe his long caslocke, and went away with his tayle betweene his legges and hid himselfe, seeing that the little man came not againe to himselfe, either for Wine, Vinegar or any other thing that was presented unto him; I drew neere to him, and felt his pulse which did not beate at all, then I sayd he was dead; then the *Brittanes* who assisted the wrafling sayd aloud in their jabbering, that is not in the sport. And some sayd that the sayd Pedagogue was accustomed to doe so, and that but a yeere passed he had done the like in a wrafling. I would needes open the body to know the cause of this sodaine death, where I found much blood in the *Thorax* and in the interiour belly, and I strived to finde out any apertion in the place, from whence might issue so great a quantity of blood, which I could not doe for all the dilligence I could make. Now I beleieve it was per *Diapedesin* or *Anastomosin*, that is to say by, the apertion of the mouthes of the vessells, or by their porosities; the poore little wrafler was buryed- I tooke leave of *Messieurs de Rohan, de Laval, and Estamps*. Monsieur de Rohan, gave mee a present of fifty double duckets, and an ambling horse, and Monsieur de Laval another for my man, and Monsieur de Estamps, a Diamond of thirty Crownes, and so I returned to my house at *Paris*.

The little
Brittish kid.The book
opened by
Authors

The Voyage of Parpignan, 1543.

A Little while after Monsieur de Rohan tooke me with him poste, to the campe of *Parpignan*; being there, the enemy made a Sally forth, and came and incloled three peeces of our Artillery, where they were beaten back, to the gates of the City: which was not done without hurting and killing many, and amongst the rest de *Brissac*, (who was then chiefe master of the Artillery) received a musket shot upon the shoulder: returning to his Tent, all the others that were hurt followed him, hoping to be drest by the Chirurgions, that ought to dresse them. Being come to his Tent and layd on his bed, the bullet was searched for by three or foure the most expert Chirurgions of the Army, who could not finde it, but sayd it was entred into his body.

In the end hee called for me, to see if I were more skilfull than them, because he had knowne me before in *Piedmont*: by and by I made him rise from his bed, and prayed him to put his body into that posture as it was then when hee received his hurt; which he did taking a javelin betweene his hands as he held the Pike in the skirmish. I put my hand about the wound, and found the bullet in the flesh, making a little tumor under the *Omoplate*: having found it I shewed them the place where it was, and it was taken out by Master *Nicholas Lavernant* Chirurgion to Monsieur the *Dolphin*, who was the Kings Lievtenant in that army, yet notwithstanding the honour remained to me for finding of it.

Adresse of
the Author.

I saw one thing of great remark, which is this: that a souldier in my presence gave to one of his fellowes a stroake with an Halbard upon the head, penetrating even to the left ventricle of the braine, without falling to the ground. Hee thit

History,

strooke him said, he had heard that he had cheated at Dice, and that he had drawne a great summe of money, and that it was his custome to cheate; I was called to dresse him, which I did as it were for the last, knowing well that he would quickly die: having drest him he returned all alone to his lodging, which was at least two hundred paces distant: I bid one of his companions send for a Priest to dispose of the affaires of his soule; he helpd him to one who stayd with him to the last gaspe. The next day the patient sent for mee by his shee friend in a boyes apparell to come to dresse him, which I would not doe, fearing hee should die under my hands; and to put it off, I sayd I must not take off the dressing till the third day, by reason hee would die though hee were never touched. The third day hee came staggering, and found me in my Tent accompanied with his wench, and prayed mee most affectionately to dresse him: And shewed me a purse wherein he had an hundred or sixscore peeces of Gold, and that he would content me to my desire; for all that, yet notwithstanding I left not off to deferre the taking off his dressing, fearing least hee should die at the same instant. Certaine Gentlemen desired me to goe dresse him, which I did at their request, but in dressing him he died under my hands in a Convulsion. Now this Priest accompanied him untill death, who seized upon the purse for feare least another should take it, saying, hee would say Masses for his soule. Moreover hee furnisht himselfe with his cloathes, and with all the rest of his things. I have recited this History as a monstrous thing, that the Souldier fell not to ground when he had received this great stroake, and was in good senses even till death. Soone after, the Campe was broken for divers causes; the one because we were advertized that foure companies of *Spaniards* were entred into *Parpignam*; the other, that the Plague begun much in our Campe, and it was told us by the people of the countrey that shortly there would bee a great overflowing of the Sea, which might drowne us all; and the presage which they had, was a very great winde from Sea, which arose in such manner that there remained not one Tent which was not broken and overthrowne, for all the strength and dilligence that could be given; and the Kitchens being all uncovered, the winde raised so the dust and sand which salted and poudred our meate, in such sort that wee could not eate it, so that wee were constrained to boile it in pots and other vessells well covered.

Now we did not uncampe our selves in so good time, but that there were many Carts and Carters Mules, and Mule drivers drowned in the Sea, with great losse of baggage. The Campe broken, I returned to *Paris*.

The voyage to Landresy. 1544.

King *Francis* raised a great Army to victuall *Landresy*: on the other side the Emperour had no lesse people, yea much more; that is to say, eighteene thousand *Germans*, tenne thousand *Spaniards*, fixe thousand *Wallons*, tenne thousand *English*, and a matter of thirteene or foureteene thousand Horse. I saw the two Armies neare one another, within Canon shot, and it was thought they would never part without giving battaile. There were some certaine foolish Gentlemen who would approach the enemies Campe; certaine shot was made at them, and some dyed at the place, others had their Legges or Armes carried away. The King having done what hee desired, which was to revictuall *Landresy*, retired himselfe with his Army to *Guisé*, which was the day after All Saints, one thousand five hundred forty foure, and from thence I returned to *Paris*.

The Voyage of Boulogne. 1545.

A Little while after we went to *Boulogne*, where the *English* seeing our Army, left the Forts which they had, that is to say, *Moulambert*; the little Paradise, *Monplaisir*, the fort of *Shatillon*, the *Portet*, the Fort *Dardelos*. One day going through the Campe to dresse my hurt people, the enemies who were in the Tower of *Order*, shot off a peece of Ordinance, thinking to kill two horsemen which stayd to talke

talke one with another. It happened that the Bullet passed very neare one of them, which threw him to the ground, and t'was thought the said Bullet had toucht him, which it did not at all, but onely the winde of the said Bullet in the midst of his coate, which went with such a force that all the outward part of the Thigh became blacke and blew, and had much adoe to stand. I diest him, and made him divers Scarifications to evacuate the contused blood, which the winde of the said Bullet had made; and the rebounds that it made on the ground, kild foure souldiers which remained dead in the place. I was not farre from this stroake, so that I felt somewhat the mooved aire, without doing mee any harme, than a little feare which made mee stoope my head very low, but the Bullet was already passed farre beyond mee.

The Souldiers mock't me to be affraid of a Bullet already gone. (My little Master) I thinke if you had beene there, that I had not beene affraid alone, and that you would have had your share of it. What shall I say more? Monsieur the Duke of Guise, Francis of Lorraine, was hurt before *Bullogne* with a stroake of a Lance, which above the right eye, declining towards the nose, entred and pass'd quite through on the other side betweene the *nucha* and the eare, with so great a violence, that the head of the Lance with a great part of the wood was broken and remained within, in such sort that it could not bee drawne out but with great force, yea with Smithes pincers. Notwithstanding all this violence which was not done without breaking of bones, nerves, and arteries, and other parts; my said Lord, by the helpe of God was cured: the said Lord went alwayes with open face, which was the cause that the Lance went through on the other side.

The hurt of
Monsieur
de Guise.

The voyage of Germany. 1552.

I Went the voyage to *Germany* in the yeare 1552. with Monsieur *De Rohan* Capitaine of 50. horse, where I was Chirurgion of his company, which I have said already. In this voyage Monsieur the high Constable of *France* was Generall of the Army: Monsieur *de Chastillon*, since Admirall, was chiefe Colonell of the foote, having foure Regiments of *Lansquenets*, under the conduct of these Captaines, *Reccrod* and *Ringrave*, having each of them two Regiments, each Regiment was of tenne Ensignes, and each Ensigne of five hundred men. And besides these, was Capitaine *Chartel*, who conducted the troopes that the Protestant Princes had sent to the King. This was a very faire company on foote, accompanied with fiftene hundred Horse, with the following of each one two Archers, which might make foure thousand five hundred Horse; besides two thousand Light horse, and as many Muskettieres on horsebacke, of whom Monsieur *de Aumalle* was Generall, besides the great number of Nobility who came for their pleasure. Moreover, the King was accompanied with two hundred Gentlemen of his house, & likewise with divers Princes; there was also for his troope that served him, the *French*, *Scottish*, and *Swissers* Guards, amounting to fixe hundred men on foote, and the companies of Monsieur the *Dolphin*, *Messieres de Guise*, *de Aumalle*, and of the Marshall *S. Andrew*, which amounted to foure hundred Lances, which was a mervelous thing to see such a faire Company; and in this equipage the King entred into *Thou* and *Mets*. I will not omit to tell that it was ordained, that the Companions of *Messieres de Rohan*, of the Count of *Sancerr*, of *Jarnac*, which was each of them of fifty horse, went by the Wings of the Campe; and God knowes we had scarcitie of victualls, and I protest to God that at three divers times I had thought I should have beene famisht, and it was not for want of money for I had enough, and we could not have victualls but by force, by reason that the *Pesants* withdrew it all into the Cittries and Castles.

One of the servants of a Capitaine of the company of Monsieur *de Rohan*, went with others thinking to enter into a Church where the *Pesants* were retired, thinking to finde victualls by force or love: but amongst the rest this man was well beaten, and returned with seaven wounds, with a sword in the head, the least of which penetrated the second table of the scull, and he had foure other upon the armes, and upon the right shoulder, which cut more than one halfe of the blade-bone, or *Omaplase*.

He

Charity of the
Author.

He was brought backe to his masters lodging, who seeing of him so wounded, and that they were to depart thence the morrow after at the breake of day, and not thinking ever he could be cured, made him a grave, and would have cast him therein, saying that, or else the *Pesants* would massacre and kill him; I mov'd with pity told him that he might yet be cured if he were well drest: divers Gentlemen of the company prayd him that he would cause him to bee brought along with the Baggage, seeing I had the willingnesse to dresse him; to which he agreed, and after that I had cloth'd him, he was but put into a Cart upon a bed well covered and well accommodated, which one horse did draw. I did the office of a Physician, Apothecary, Chirurgion, and Cooke; I drest him even to the end of his cure, and God cured him, in so much that all these three Companies admired at this cure. The horsemen of the company of Monsieur de Rohan, the first muster that was made, gave me each one, one Crowne, and the Archers halfe a Crowne.

The voyage of Danvilliers. 1552.

Another
History.

AT the returne from the German Campe, King Henry beseiged Danvilliers, those within would not render. They were well beaten and our powder failed us, in the meane time they shot much at our people. There was a Culverin shot pass'd a traverse the Tent of Monsieur de Rohan, which hit a Gentlemans Leg, which was of his traine; which I was faine to finish the cutting off, the which was done without applying hot irons.

The King sent for powder to Sedan, which being come they began a greater battery than before, in such sort that they made a breach. *Messieurs de Guise*, and the high Constable being in the Kings Chamber, told him they concluded the next day to make assault, & that they were assured they should enter into it, & that they should keep it secret lest the enemy were advertized. And all of them promised not to speake of it to any one. Now there was a Groome of the Kings chamber who lay under the Kings bed in the Camp to sleep, understood that they resolved the next day to give an assault, he presently revealed it to a certaine Captaine and told him that for certaine the day following assault should be given, & that he had heard it of the King, & praid the said Captaine that he would not speake a word of it to any body, which he promised, but his promise was not kept, for at the same instant, he went and declared it to a Captaine, & this Captaine to another Captaine, and from the Captaines to some of the Souldiers, saying alwayes, say nothing. It was so well hid that the next day early in the morning there was scene the greatest part of the Souldiers with their round hose and their breeches cut at knee for the better mounting at the breach. The King was advertiz'd of the rumor which runne through the Campe, that the assault must be given, whereof hee much mervailed, seeing there was but three of that advise, which had promised one to another, not to tell it to any one. The King sent for Monsieur de Guise, to know if hee had not talked of this assault; hee swore and affirmed to him he had not told it to any body; and Monsieur the Constable said as much; who said to the King he must expressly know who had declared this secret counsell; seeing they were but three. Inquisition was made from Captaine to Captaine, in the end the truth was found; for one sayd twas such a one told me, another sayd as much, till at length they came to the first, who declared he had leard it of a Groome of the Kings chamber, named Guyard, borne at Blois, the sonne of the deceased King Francis his Barber. The King sent for him into his Tent, in the presence of Monsieur de Guise, and of Monsieur the Constable, to understand from him whence he had it, and who told him that this assault was to bee given. The King told him that if he did not tell the truth, that he would cause him to be hanged; then he declared, he lay downe under his bed thinking to sleepe, and so having heard it, he declared it to a Captaine who was a friend of his, to the end hee might prepare himselfe with his Souldiers the first for the assault. After the King knew the truth; he told him, he should never serve him againe, and that he deserved to be hanged, and forbid him ever to come againe to the Court. My Groome of the Chamber went away with this sad newes, and lay with one of the Kings Chirurgions

What it is to
reveale the se-
crets of Princes.

Chirurgions in ordinary, named Master *Lewis*, and in the night gave himselfe six wounds with a knife, and cut his throate; yet the said Chirurgion perceived nothing till morning, till hee saw the bed bloody, and the dead body by him: hee much marvelled at this spectacle upon his waking, and was afraid least they should say he was the cause of this murther; but was soone freed, knowing the cause to bee from desperation, having lost the good amitie which the King bore to him. The said *Guyard* was buried. And those of *Danvilliers* when they saw the breach large enough for them to enter in, and the Souldies prepared for the assault, yeilded themselves to the mercy of the King. The chiefe of them were prisoners, and the Souldiers sent away without armes. The Campe being broken up I returned to *Paris* with my Gentleman whose Leg I had cut off, I drest him and God cured him; I sent him to his house merry with a wooden Leg, and was content, saying that he escaped good cheape, not to have beene miserably burnt, as you write in your booke, my little Master.

The Voyage of Castle the Compt. 1552.

A Little while after King *Henry* levied an Army of thirty thousand men, to goe make spoile about *Hedin*. The King of *Navarre* who was then called Monsieur *de Vendosme*, was chiefe of the Army, and the Kings Lievtenant. Being at *S. Denis* in *France*, staying while the companies pass'd by, he sent for me to *Paris* to come speak with him; being there, he prayed me, and his request was a command, that I would follow him this voyage; and I about to make my excuse told him him my wife was sicke in her bed, he made me answer, that there were Philitions at *Paris* for to cure her; and that he as well left his owne, who was as well descended as mine; promising me that hee would use me well, and forthwith gave command that I should be lodged as one of his Traine. Seeing this great affection, which he had to leade me with him, I durst not to refuse him. I went and met with him at the Castale of *Compt*, within 3. or 4. leagues of *Hedin*, there where there was the Emperors Souldiers in garrison with a number of *Pessants* round about: hee caused them to be summond to render themselves; and they made answer they should never have them but by peeces, and let them doe their worst, and they would doe their best to defend themselves. They put confidence in their ditches full of water, and in two houres with a great number of Bavins, and certaine empty Caskes, way was made to passe over the foote: when they must goe to the assault and were beaten with five peeces of Cannon, till a breach was made large enough to enter in, where they within received the assault very valiantly, and not without killing and hurting a great number of our people with musket shot, pikes and stones. In the end when they saw themselves constrained, they put fire to their poudre and munition, which was the cause of burning many of our people, and of theirs likewise, and they were all almost put to the edge of the sword. Notwithstanding some of our Souldiers had taken twentie or thirtie, hoping to have ransome for them. That was knowne, and ordered by the Counsell that it should be proclaimed by the Trumpet through the Campe, that all Souldiers who had any *Spaniards* prisoners were to kill them, upon paine to be hanged and strangled, which was done upon cold blood. From thence we went and burnt diver Villages, whose barnes were full of all kind of graine, to my great greefe. Wee went along even to *Tournahan*, where there was a very great Tower where the Enemies retired, but there was no man found in it, all was pillaged, and the Tower was made to leape by a Mine, and then with Gunpoudre turned topsy turvy. After that, the Campe was broken up, and I returned to *Paris*. I will not yet forget to write that the day after the Castle of *Compt* was taken, Monsieur *de Vendosme* sent a Gentleman to the King to make report to him of all which had pass'd, and amongst other things, told the King that I had greatly done my duty in dressing those that were wounded, and that I had shewed him eightene Bullets which I had taken or drawne out of the hurt bodies, and that there were divers more which I could neither finde, nor draw out, and told more good of mee than there was by halfe. Then the King said hee would have mee into his service, and

The King of Navarre prayed the Author to follow him.

History of desperate people,

The taking of Castle of Compt.

and commanded Monsieur de Goguer his chiefe Physition to write me downe as entertained one of his Chirurgions in ordinary, and that I should goe meeete with him at *Rheimes* within ten or twelve dayes; which I did, where he did me the honour to command me that I would dwell neare him, and that he would doe me good. Then I thankr him most humbly for the honour it pleased him to doe me, in calling me to his service.

The Voyage of Mets. 1552.

The names
of the Princes
who were at
the seige of
Mets,

Nota,

Commission
of the Author,

THE Emperour having beseiged *Mets*, and in the hardest time of winter, as each one knowes of fresh memory: and that there was in the Citty five or fixe thousand men, and amongst the rest seaven Princes; that is to say, Monsieur the Duke of *Guise* the Kings Lievtenant, *Messieurs d'Anguien, de Conde, de Montpensier, de La Roch upon Yon, Monsieur de Nemours*, and divers other Gentlemen, with a number of old Captaines of warre, who often made sallies forth upon the enemies, (as wee shall speake of hereafter) which was not done without slaying many, as well on the one side as the other. For the most part all our wounded people dyed, and it was thought the medicaments wherewith they were dressed were poysoned; which caused Monsieur de *Guise* and other Princes to send to the King for mee, and that hee would send me with *Drogues* to them, for they beleevd theirs were poysoned, seeing that of their hurt people few escaped. I doe not beleve there was any poyson, but the great stroakes of the Cutlasses, Musket shot, and the extremity of cold were the cause. The King caused one to write to Monsieur the Marshall of *S. Andrew* which was his Lievtenant at *Verdun*, that hee found some meanes to make me enter into *Mets*. The said Lord Marshall of *S. Andrew* and Monsieur the Marshall of old *Ville*, got an *Italian* Captaine, who promised them to make me enter in, which he did, and for which hee had fiftene hundred Crownes: the King having heard of the promise which the *Italian* Captaine had made, sent for mee and commanded me to take of his Apothecary named *Daigue* such, and as many *Drogues* as I should thinke fit for the hurt who were beseiged, which I did, as much as a post-horse could carry. The King gave me charge to speake to Monsieur de *Guise* and to the Princes, and Captaines who were at *Mets*. Being arrived at *Verdun*, a few dayes after Monsieur the Marshall of *S. Andrew*, caused horses to be given to mee, and my man and for the *Italian*, who spake very good high *Dutch, Spanish* and *Walon* with his owne naturall tongue: When we were within eight or tenne Leagues of *Mets*, wee went not but in the night, and being neare the Campe, I saw a league and a halfe off bright fires round about the Citty, which seemed as if all the earth were on fire, and I thought wee could never passe through those fires without being discovered, and by consequent be hanged and strangled, or cut in peeces, or pay a great ransome. To speake truth, I wished my selfe at *Paris*, for the eminent danger which I foresaw. God guided so well our affaires that wee entred into the Citty at midnight with a certaine Token, which the Captaine had with another Captaine of the company of Monsieur de *Guise*: which Lord I went to, and found him in bed, who received me with great thanks, being joyfull of my comming. I did my message to him of all that the King had commanded me to say to him; I told him I had a little letter to give him, and that the next day I would not faile to deliver it him. That done he commanded mee a good lodging, and that I should be well used, and bid mee I should not faile to be the next day upon the Breach, where I should meeete with all the Princes, and divers Captaines, which I did; who receaved me with great joy, who did mee the honour to imbrace me, and tell me I was very welcome, adding withall they did not feare to dye if they should chance to be hurt. Monsieur de *La Roch upon Yon* was the first that feasted me, and inquired of me what they sayd at the Court concerning the Citty of *Mets*; I told him what I thought good. Then presently he desired mee to goe see one of his Gentlemen, named Monsieur de *Magnane* at this present Knight of the Kings order, and Lievtenant of his Majesties Guard; who had his Leg broken by a Cannon shot. I found him in his bed, his Leg bended and crooked, without any dressing

History.

dressing upon it; because a Gentleman promised him cure, having his name, and his girdle, with certaine words. The poore Gentleman wept, and cryed with paine which he felt, not sleeping either night or day, in foure dayes: then I mock't at this imposture and false promise. Presently I did so nimbly restore and dresse his Legge, that he was without paine and slept all night, and since (thanks be to God) was cured, and is yet at this present living, doing service to the King. The said Lord of the *Roch upon Ton* sent me a Tunne of wine to my lodging, and bid tell me, when it was drunken hee would send mee another. That done, Monsieur de Guise gave me a list of certaine Captaines and Lords, and commanded me to tell them what the King had given me in charge, which I did, which was to doe his commendations and a thanksgiving for the duty they had done, and did in the keeping of the City of *Mess*, and that he would acknowledge it. I was more than eight daies in acquitting my charge, because they were many; first to the Princes and others, as the Duke of *Horace*, the Count of *Martignes*, and his brother, Monsieur de *Bauge*, the Lords *Montmorancy*, and d' *Anville*, then Marshall of *France*, Monsieur de *La Chapel*, *Bonni-vet Caroug* now Governour of *Rohan*, the *Vidasme* of *Chartres*, the Count of *Lude*, Monsieur de *Biron* now Marshall of *France*, Monsieur de *Randan* the *Roch-foucaut*, *Boxdaille d'Etrez*, the yonger, Monsieur de *S. John* in *Dolphins*, & many others which it would bee too long to recite; and chiefly to divers Captaines who had very well done their duty in defence of their lives, and Citty. I demanded afterwards of Monsieur de Guise, what it pleased I should doe with the Drogues which I had brought, he bid me impart them to the Chirurgions and Apothecaries, and chiefly to the poore hurt Souldiers in the Hospitall which were in great number; which I did, and can assure you, I could not doe so much as goe see them, but they sent for mee to visit and dresse them. All the besieged Lords prayed mee carefully to sollicite above all others Monsieur de *Pienne* who was hurt at the breach by a stone raised by a Cannon shot in the Temple with a fracture, and depression of the bone. They told mee that presently when hee received the stroake, hee fell to the earth as dead, and cast blood out of his mouth, nose, and eares with great vomitings, and was foureteene dayes without speaking one word, or having any reason; there happened to him also startings somewhat like Convulsions, and had all his face swell'd and livid. Hee was trepan'd on the side of the temporall muscle upon the *Os Coronale*. I drest him with other Chirurgions, and God cured him, and is at this day living, God be thanked. The Emperour caused battery to be made with forty double Cannons, where they spared no poudre night nor day. Presently when Monsieur de Guise saw the Artillery seared to make a breach, hee made the nearest houses to be pulled downe to make Ramparts, and the posts and beames were ranged, end to end, and betweene two clods of earth, beds and packs of wooll, and then other posts and beames were put againe upon them as before. Now much wood of the houses of the suburbs which had beene put to the ground (for feare least the enemy should be lodged, close covered, and that they should not helpe themselves with any wood) served well to repaire the breach. Every one was busied to carry earth to make the Ramparts night and day. Messieurs the Princes, Lords and Captaines, Lieutenants, Ensignes, did all carry the basket, to give example to the Souldiers, and Cittizens to doe the like, which they did, yea both Ladies and Gentlewomen, and those which had not baskets, helpt themselves with kettles, panniers, sackes, sheets, and with what else they could to carry earth; in so much that the enemy had no sooner beaten downe the wall, but hee found behind a Rampart more strong. The wall being fallen our Souldiers cryed to those without, the Fox, the Fox, the Fox, and spake a thousand injuries one to another. Monsieur de Guise commanded upon paine of death that no man should speake to them without, for feare least there should be some Traitor who would give them intelligence what was done in the Citty; the command made, they tyed living Cats at the end of their Pikes, and put them upon the Wall and cryed with the Cats miau, miau.

The hurt of
Monsieur de
Pienne, trepan-
ned and cured.
red.

Princes carried
the Baskets.

Breach.

Truly the Imperialists were very much vexed to have beene so long making a breach, and at so great expence, which was the breach of fourescore steps, to enter fifty men in front, where they found a Rampart more strong than the wall; they fell

fell upon the poore Catts, and shot at them with their muskets as they use to doe at birds. Our people did oftentimes make sallies by the command of Monsieur *de Guise*. The day before there was a great presse, to make themselves enrowled, who must make the sally chiefly of the young Nobility, led by well experimented Captaines. Insomuch that it was a great favour, to permit them to sally forth, and runne upon the enemy: and they sallied forth alwayes the number of one hundred, or six-score armed men with Cutlasses, Muskets, Pistolls, Pikes, Partisans and Halberds, which went even to their trenches to awaken them. Where they presently made an alarum throughout all their Campe, and their Drummes sounded, plan, plan, ta, ti, ta, ta, ta, ti, ta, tou, touf, touf: likewise their Trumpets and Cornets, sounded, to the saddle, to the saddle, to the saddle, to horse, to horse, to horse, to the saddle, to horse. And all their souldiers cry'd Arme, arme, arme, to armes, to armes, to armes, arme, to armes, arme, to armes, like the cry after Wolves, and all divers tongues, according to their nations: and they were seene to goe out from their tents, and little lodgings, as thicke as little Bees, when their Hive is discovered; to succour their fellowes, who had their throates cut like sheepe. The horsemen likewise came from all parts, a great gallop, patati, patata, patati, patapa, ta, ta, patata, patata, and tarried well that they might not bee in the throng, where stroakes were imparted to give and receive. And when our men saw they were forced, they returned into the Citty, still fighting, and those who runne after were beaten backe with the Artillery which they had charged with flint stones, and foure-square peeces of iron; and our souldiers who were upon the sayd wall made a volley of shot, and shewred downe their bullets upon them like haile, to send them backe to their lodging, where divers remained in the place of the combate, and also our men did not all come with whole skinnes, and there still remained some for the Tythe, who were joyfull to dye in the bed of honour. And where there was a horse hurt he was slayed, and eaten by the Souldiers in steed of beefe and bacon, and it was fit I must runne, to dresse our hurt men. A few dayes after, other sallies were made, which did much anger the enemies, because they did not let them sleepe but little in safety. Monsieur *de Guise*, made a warlike stratagem which was, he sent a Pefant who was none of the wisest with two paire of Letters toward the King, to whom he gave ten Crownes, and promised the King should give him an hundred, provided he gave him the letters. In the one he sent word that the enemy made no signe of retiring himselfe, and by all force made a great breach which he hop't to defend, yea to the losing of his life, and of all those that were within, and that the enemy had so well placed his Artillery in a certaine place which he named, that with great difficulty was it kept that they had not entred into it, seeing it was a place the most weake of all the Citty: but he hoped quickly to fill it up againe in such sort, that they cannot be able to enter. One of these letters was sowed in the lining of his doublet, and he was bid to take heede that he told it not to any man. And there was also another given to him: wherein the sayd Monsieur *de Guise* sent word to the King, that he & all the beseiged did hope well to keepe the Citty, and other matters, which I cease to speake of. They made the Pefant goe forth in the night, and presently after, he was taken by one that stood Sentinell, and carryed to the Duke of *Albe*, to understand what was done in the Citty, and they asked him if he had any letters, he sayd yes, and gave them one; and having seene it he was put to his oath, whether he had any other, and he swore, not; then they felt and search't him, and found that which was sowed to his doublet, and the poore messenger was hanged.

The sayd letters were communicated to the Emperor, who caused his counsell to be called there, where it was resolved since they could doe nothing at the first breach, that presently the Artillery should be drawne to the place which they thought the most weake, where they made great attempts to make another breach, and dig'd and undermined the wall, and endeavoured to take the Tower of Hell, yet they durst not come to the assault. The Duke of *Albe* declared to the Emperor that the souldiers dyed dayly, yet, more than the number of two hundred, and that there was but little hope to enter into the Citty, seeing the season, and the great quantity of souldiers that there were. The Emperor demanded what people they were that dyed,

and

and if that they were gentlemen of remarke or quality: answere was made, that they were all poore souldiers; then sayd he, it makes no matter if they dye, comparing them to caterpillers and grasshoppers, which eate the buddes of the earth: And if they were of any fashion, they would not bee in the campe for twelve shillings the month, and therefore no great harme if they dyed. Moreover he sayd he would never part from before that Citty, till he had taken it by force, or famine, although he should loose all his army: by reason of the great number of Princes which were therein, with the most part of the Nobility of *France*. From whom hee hoped to draw double his expence, and that he would goe once againe to *Paris*, to visite the *Parisiens*, and make himselfe King of all the kingdome of *France*. Monsieur de *Guise* with the Princes, Captaines, and Souldiers, and generally all the Cittizens of the Citty, having understood the intention of the Emperour, which was to extirpate us all, they advised of all they had to doe: And since it was not permitted to the souldiers, nor Cittizens, no nor to the Princes, nor Lords themselves to eate either fresh fish, or Venison, as likewise some Partridges, Woodcockes, Larkes, Plovers, for feare least they had gathered some pestilentiall ayre which might give us any contagion; but that they should content themselves with the ammunition fare, that is to say, with Bisquite, Beefe, powdered Cowes, Lard, and gammons of Bacon: Likewise fish, as Greenefish, Salmon, Sturgeon, Anchovies, Pilchers and Herrings, also Pease, Beanes, Rife, Garlike, Onions, Prunes, Cheefe, Butter, Oyle, Salt, Pepper, Ginger, Nutmegges, and other Spiceries to put into pyes, cheefely to horseflesh, which without that would have had a very ill taste; divers Citizens having gardens in the Citty sowed therein great Raddishes, Turnippes, Carrots, and Leekes, which they kept well and full deare, against the extremity of hunger. Now all these ammunition victualls were distributed by weight, measure, and justice, according to the quality of the person, because we knew not how long the seige would last. For having understood from the mouth of the Emperour, that he would never part from before *Mets*, till he had taken it by force, or famine; the victualls were lessened, for that which was wont to be distributed to three, was now shared amongst foure, and defence made they should nor sell what remained after their dinner, but twas permitted to give it to the wenches that followed the Campe. And rose alwayes from table with an appetite, for feare they should be subject to take Phylicke. And before we would yeeld our selves to the mercy of our enemies; had resolved to eate our Asses, Mules, Horses, Dogges, Cats, and Ratts, yea our bootes and other skinnes which we could soften and trie. All the besieged did generally resolve to defend themselves with all sorts of instruments of warre, that is to say, to ranke, and charge the Artillery, at the entry of the breach with bullets, stones, Cart nayles, barres, and chaines of iron. Also all kinds and differences of artificiaall fire; as Bores, Bariquadoes, Granadoes, Potts, Lances, torches, squibbes, burning faggots. Moreover scalding water, melted lead, powder of unquenched lime to blind their eyes. Also they were resolved to have made holes through, and through their houses, there to lodge musketiers, thereto batter in the flanke and hasten them to goe, or else make them lye for altogether. Also there was order given to the women to unpave the streetes, and to cast them out at their windows, billers, tables, tressles, formes, and stooles, which would have troubled their braines: moreover there was a little further, a strong Court of Guard, fild with carts and pallisadoes, pipes and hogs heads, fild with earth, for barriquadoes to serve to interlay with faulcons, faulconets, field peeces, harquibuzes, muskets, and pistolls and wilde fire, which would have broken legges and thighes, insomuch that they had beene beaten in head, in flanke, and in tayle; and where they had forced this Court of Guard, there was others at the crossing of the streets, each distant an hundred paces, who have beene as bad companions as the first, and would not have beene without making a great many Widdowes, and Orphans. And if fortune would have beene so much against us, as to have broken our Courts of gard, there was yet seven great Bastallions ordered in square, and triangle, to combare altogether, each one accompanied with a Prince to give them boldnesse, and encourage them to fight, even till the last gaspe, and to dye altogether. Moreover it was resolved, that each one should carry his treasure, rings, and jewells, and their household stuffe of the best,

to burne them in the great place, and to put them into ashes rather than the enemy should prevaile and make trophyes of their spoyles; likewise there was people appointed to put fire to the munition, and to beate out the heads of the Wine caskes, others to put the fire in each house, to burne our enemies and us together: the Citizens had accorded it thus, rather than to see the bloody knife upon their throate, and their Wives and Daughters violated, and to be taken by force, by the cruell and inhumane *Spaniards*. Now we had certaine prisoners which Monsieur *de Guise* sent away upon their faith, to whom was secretly imparted our last resolution, wil and desperate mindes; who being arrived in their Campe, doe not deferre the publishing, which bridled the great impetuosity, and will of the souldiers to enter any more into the Citty to cut our throates, and to enrich themselves of our pillage. The Emperour having understood this deliberation of the great warrior, the Duke of *Guise*, put water in his wine, and restrained his great choller and furie, saying, He could not enter into the Citty without making a great slaughter, and butchery, and spill much blood, aswell of the defendants, as of the assailants, and that they should be dead together, and in the end could have nothing else but a few ashes, and that afterward it might be spoken of that, as of the destruction of *Ierusalem* already made by *Titus* and *Vespasian*. The Emperour then having understood our last resolution, and seeing their little prevailing by their battery, and undermining, and the great plague which was in his whole army, and the indisposition of the time; and the want of victualls and money, and that his souldiers forsooke him, and went away in great compaines, concluded in the end to retire themselves accompanied with the Cavallery of his Vantgard, with the greatest part of his Artillery, and the Battalia; The Marquesse of *Brandeborg* was the last which uncampd, maintained by certaine bands of *Spaniards*, *Bohemians*, and his *Germane* companies, and there remained one day and a halfe after, to the great greefe of Monsieur *de Guise*, who caused foure peeces of Artillery to be brought out of the Citty, which he caused to be discharged at him on one side, and the other to hasten them to be gone, which he did full quickly, with all his Troopes. He being a quarter of a league from *Mets* was taken with a feare lest our Cavallery should fall upon him in the Rere, which caused him to put fire to his munition powder, and leave certaine peeces of Artillery and much baggage which hee could not carry because the Vantgard, and the Battalia, and great Cannons had too much broken the way. Our horsemen would by all meanes have gone out of the Citty to have fallen upon their breech. But Monsieur *de Guise* would never permit them, but on the contrary we should rather make plaine their way, and make them bridges of gold and silver, and let them goe, being like to a good shepheard, who will not loose one of his sheepe. See now how our wellbeloved Imperialists went away from before the Citty of *Mets*, which was the day after *Christmas* day, to the great contentment of the beseiged, and honour of Princes, Captaines and Souldiers who had endured the travells of this seige the space of two monthes. Notwithstanding they did not all goe, there wanted twenty thousand who were dead aswell by Artillery, by the sword, as also by the plague, cold, and hunger, and for spight they could not enter into the Citty to cut our throates, and have the pillage: and also a great number of their horses dyed, of which they had eaten a great part in steed of Beefe and Bacon. They went where they had beene encamped, where they found divers dead bodies not yet buried, and the earth all dihged like Saint *Innocents* Churchyard, in the time of the plague. They did likewise leave in their lodgings, pavillions and tents, divers sick people: also bullets, armes, Carts, Waggons, & other baggage with a great many of Munition loaves spoyled and rotten by the raine and snow, yet the souldiers had it not but by weight and measure; & likewise they left great provision of wood, of the remainders of the houses of the Villages which they had pluckt downe 2 or 3 miles compasse, likewise divers other houses of pleasur belonging to the Citizens accompanied with faire gardens, grasse plots fild with fruite trees, for without that they had beene sterv'd with cold, and had beene constrained to have rais'd the seige sooner. The sayd Monsieur *de Guise* caused the dead to be buried, and dresse their sicke people: likewise the enemies left in the Abby of *S. Arnoul* divers of their hurt souldiers which they could not leade with them: the sayd Monsieur *de Guise* sent them all Victualls enough, and commanded me and other Chirurgions to goe dresse them

and

and give them medicines; which we willingly did, and thinke they would not have done the like toward others (because the *Spaniard* is most cruell, perfidious and inhumane, & therefore enemy to all nations) which is proved by *Lopez a Spaniard* & *Benzo of Milan* & others who have written the history of *America*, & the *West Indies*, who have beene constrained to confesse, that the cruelty, avarice, blasphemy, and wickednesse of the *Spaniards*, have altogether alienated the poore *Indians*, from the religion which the sayd *Spaniards* are sayd to hold. And all write they are lesse worth than the Idolatrous *Indians*, by the cruell usage done to the sayd *Indians*.

And a few dayes after we sent a Trompet to *Thionville* toward the enemy, that they should send backe for their wounded men in safety, which they did with Carts and Waggon, but not enough. Monsieur de Guise, caused them to have Carts and Carters, to helpe to carry them to the sayd *Thionville*. Our sayd Carters being returned backe, brought us word that the way was paved with dead bodyes, and that they never lead backe the halfe, for they dyed in their Carts, and the *Spaniards* seeing them at the point of death, before they had cast out their last gaspe, cast them out of their Carts, and buried them in the mudde, and mire, saying they had no order to bring backe the dead. Moreover our sayd Carters sayd, they met by the way divers Carts loaden with baggage sticking in the mire, which they durst not send for backe, for feare least those of *Mets* should fall upon them. I will againe returne to the cause of their mortality, which was principally through hunger, plague, and cold; for the snow was two foote thicke upon the earth, and they were lodged in the caves of the earth, onely covered with a little straw. Notwithstanding each souldier had his field bed, and a covering strewed with glittering starres, more bright than fine gold, and every day had white sheetes, and lodg'd at the signe of the Moone, and made good cheere when they had it, and payd their hoste so well over night, that in the morning they went away quitte, shaking their cares, and they needed no combe, to take away the doune out of their haire, either of head or beard, and found alwayes a white table cloath, losing good meales for want of Victualls. Also the greatest part of them had neither bootes, nor buskinnes, slippers, hose, or shooes, and divers had rather have none than have them, because they were alwayes in mudde, halfe way of the legges; and because they went bare leg'd, we called them the Emperors Apostles. After the Campe was wholly broken, I distributed my patients into the hands of the Chirurgions of the Citty, to finish their cure: then I tooke leave of Monsieur de Guise, and came backe toward the King, who received me with a loving countenance, and demanded of me how I did enter into the Citty of *Mets*. I recounted to him, all that I had done, he caused two hundred crownes to be given me, and one hundred I had at my going out, and told me he would not leave me poore; then I thanked him most humbly of the good and the honour which he pleased to doe me.

The Voyage of Hedin, 1553.

Charles the Emperor caused the Citty of *Theroüenne* to be beseiged, where Monsieur the Duke of Savoy, was Generall of the whole army: it was taken by assault where there was a great number of our men slaine and prisoners. The King willing to prevent that the enemy should not also come to beseige the Citty & Castle of *Hedin*, sent Messieurs the Duke Bouillon, the Duke Horace, the Marquesse of Villars, a number of Captaines, and about eight hundred souldiers, & during the seige of *Theroüenne*, the sayd Lords fortified the sayd Castle of *Hedin*, in such sort that it seemed impregnable: The King sent me to the sayd Lords to helpe them with my Art, if there were any neede. Now soone after the taking of *Theroüenne*, we were beseiged with the army: there was a quicke cleare fountaine or Spring, within Cannon shot, where there was about fourescore whores, and wenches of the enemies, who were round about it to draw water. I was upon a Rampart beholding the Campe, and seeing so many idlers about the sayd fountaine, I prayed Monsieur de Pont Commissary of the Artillery, to make one Cannon shot, at that roguish company, he made me much deniall, answering me that such kind of people were not worth the powder they should

waste. Againe I prayed him to leuell the Cannon, telling of him, the more dead the fewer enemies; which he did through my request, and at that shot fiftene or sixteene were kild and many hurt. Our souldiers sallied forth upon the enemies, where there was many kild, and slaine with musket shot and swords, as well on the one side, as of the other, and our souldiers did often make sallies forth upon the enemies before their trenches were made; where I had much worke cut out, so that I had no rest night nor day for dressing the wounded. And I will tell this by the way, that we had put many of them in a great Tower, layd upon a little straw, and their pillowes were stones, their coverlets were their cloakes, of those that had any. Whilst the battery was making, as many shot as the Cannons made, the patients sayd they felt paine in their woundes, as if one had given them blowes with a staffe, the one cry'd his head, the other his arme, and so of other parts; divers of their woundes bled afresh yea in greater quantity than first when they were wounded, and then it was I must runne to stay their bleeding. My little master, if you had beene there, you had beene much troubled with your hot irons, you had neede to have had much charcoale to make them red hot, and beleeve they would have slaine you like a Calfe for this cruelty. Now through this diabolicall tempest of the Eccho from these thundring Instruments, and by the great and vehement agitation of the collision of the ayre resounding and reverberating in the woundes of the hurt people, divers dyed, and others because they could not rest by reason of the groanes and cryes that they made, night and day; and also for want of good nourishment and other good usage necessary to wounded people. Now my little master, if you had beene there, you would hardly have given them gelly, restauratives, cullises, pressures, panado, cleansed barley, white meate, almond milke, Prunes, Raisons, and other proper meates for sicke people: your ordinance would onely have beene accomplisht in paper, but in effect they could have had nothing but old Cow beefe, which was taken about *Hedin* for our munition, salted and halfe boyled, insomuch that who would have eate it he must pull it with the force of his teeth, as birds of Prey doe carrion. I will not forget their linnen wherewith they were drest, which was onely rewashed every day, and dried at the fire, and therefore dry & stubborne like Parchment, I leave you to thinke how their woundes could heale well. There was foure lusty whores to whom charge was given to wash their linnen, who discharged their duty under penalty of the batoone, and also they wanted both soape and water. See then how the sicke people dyed for want of nourishments, and other necessary things. One day our enemies fained to give us a generall assault, to draw our Souldiers upon the breach, to the end to know our countenance and behaviour: every one ranne thither, we had made great provision of artificiall fire, to defend the breach; a Priest belonging to *Monsieur du Bouillon* tooke a granado, thinking to throw it on the enemies, and set it on fire sooner then he ought to have done: it brake asunder, and the fire fell amongst our fire workes, which were put into a house neere the breach; which was to us a marvelous disastre, because it burned diverse poore souldiers: it also tooke hold on the house it selfe, and we had beene all burned had not great helpe beene used for to quench it; there was but one Well there wherein was water in our Castle, which was almost quite dried up, and in steede of water, we tooke beere and quenched it: then afterwards we had great scarcity of water; and to drinke the rest that remained which we must straine through napkins.

Now the enemy seeing this smoake and tempest of the fire workes which cast a very great flame and clashing noyse, beleeved wee had put the fire on purpose for the defence of our breach, to burne them, and that wee had great store of others. That made them to be of another opinion, than to take us by assault; they did undermine, and digge into the greatest part of our walls, so that it was the way to overthrow wholly the Castle topsie turvie, and when the mines were finisht, and that their Artillery shot, the whole Castle did shake under us, like an earthquake, which did much astonish us. Moreover he had levelled five peeces of Artillery which they had scated upon a little hill, to play upon our backs when wee should goe to defend the breach.

The Duke *Horace* had a Cannon shot upon one shoulder, which caried away his

arme on one side, and the body on the other, without being able to speake one onely word. His death was to us a great disasture for the ranke which hee held in this place.

Likewise Monsieur *de Martigues* had a stroake with a Bullet which peirc't through his Lungs; I drest him, as I will declare hereafter. Then we demanded Parle, and a Trumpet was sent toward the Prince of *Piedmont*, to know what composition it pleased him to make us: His answer was, that all the chiefe, as Gentlemen, Captaines, Lieutenants, and Ensignes, should be taken for ransome, and the Souldiers should goe out without Armes; and if they refused this faire and honest proffer, the next day we ought to be assured they would have us by assault or otherwise. Counsell was held, where I was called to know if I would signe as divers Captaines, Gentlemen and others, that the place should bee rendred up. I made answer it was not possible to be held, and that I would signe it with my proper blood, for the little hope that I had, that wee could resist the enemies force, and also for the great desire which I had to be out of this torment, and hell; for I slept not cyther night or day, by reason of the great number of hurt people, which were about two hundred. The dead bodies yeelded a great putrifaction, being heaped one upon the other like Fagots, and not being covered with earth because we had it not; and when I entred into one lodging, Souldiers attended me at the dore to goe dresse others at another; when I went forth, there was striving who should have me, and they carried me like a holy body not touching the ground with my foote in spight one of another, nor could I satisfie so great a number of hurt people. Moreover I had not what was necessary to dresse them withall; for it is not sufficient that the Chirurgion doe his duty towards the patients, but the patient must also doe his, and the assistance, and all exterior things; witnesse *Hippocrates* in his first *Aphorisme*. Now having understood the resolution of the yeelding up of our place, I knew our affaires went not well; and for feare of being knowne I gave a velvet Coate, a Satin doublet, a very fine cloth cloak lin'd with velvet, to a Souldier, who gave me a scurvy old torne doublet cur and flaiht with using, and a leather jerkin well examined, and an ill favoured hat, and a little cloake; I smutcht the collar of my shirt with water in which I had mingled a little soote; likewise I wore out my stockings with a stone at the knees and the heeles as if they had beene worne a long time, and I did as much to my shooes, in so much that they would rather take me for a Chimney sweeper, than a Kings Chirurgion. I went in this equipage towards Monsieur *de Martigues*, where I pray'd him that he would take order that I might remaine neare him to dresse him, which he agreed to most willingly, and had as much desire I should remaine with him as I my selfe. Soone ater, the Commissioners who had charge to elect the prisoners, entred into the Castle, the seaventeenth day of *July* one thousand five hundred fifty three, where they made *Messieurs* the Duke of *Bonillon*, the Marquesse of *Villars*, the Baron of *Culan*, Monsieur *du Pont* commissary of the Artillery, and Monsieur *de Martigues* and I to be taken through the request that he made to them; and all other Gentlemen which they could perceive were able to pay any ransome, and the most part of the Souldiers and the cheefe of the Companies, having such, and so many prisoners as they would.

Afterward the *Spanish* Souldiers entred by the Breach without any resistance, for ours esteemed they would hold their faith and composition that they should have their lives saved. They entred in with a great fury to kill, pillage, and rife all they retained: some hoping to have ransome, they tyed their stones with Arquebuse cords, which was cast over a Pike which two held upon their shoulders, then pulled the said cord with a great violence and derision, as if they would ring a Bell, telling them that they must put themselves to the ransome, and tell of what houses they were; and if they saw they could have no profit, made them cruelly dye betweene their hands, or presently after their genitall parts would have falne into a Gangrene, and totall mortification; but they kild them all with their Daggers, and cur their throats. See now their great cruelty and perfidioussnesse, let him trust to it that will. Now to returne to my purpose being lead from the Castle to the Citty with Monsieur *de Martigues*, there was a Gentleman of the Duke of *Savoyes*, who asked mee

if Monsieur *de Martigues* wound was curable, I answered, not; who presently went and told the Duke of *Savoy*; now I thought he would send Physicians and Chirurgions to visit and dresse my said Monsieur *de Martigues*; in the meane time I thought with my selfe whether I ought to make it nice and not to acknowledge my selfe a Chirurgion for feare least they should retaine mee to dresse their wounded, and in the end they would know I was the Kings Chirurgion, and that they would make me pay a great ranfome. On the other side I feared, if I should not make my selfe knowne to bee a Chirurgion, and to have carefully dressed Monsieur *de Martigues*, they would cut my throate, so that I tooke a resolution to make it appeare to them he would not dye for want of good dressing and looking to. Soone after, see, their arrives divers gentlemen accompanied with the Physician and Chirurgion to the Emperour, and those of the said Duke of *Savoy*, with sixe other Chirurgions following the Army, to see the hurt of the said Lord of *Martigues*, and to know of mee how I had dressed him, and with what medicines. The Emperours Physician bid me declare the essence of the wound, and how I had dressed it. Now all the assistance had a very attentive eare to know if the wound were mortall or not: I began to make a discourse that Monsieur *de Martigues* looking over the wall to perceive them that did undermine it, received a shot from an Arquebuse quite through the body; presently I was called to dresse him, I saw hee cast blood out of his mouth, and his wounds. Moreover he had a great difficultie of breathing, and cast out winde by the said wounds with a whistling, in so much that it would blow out a Candle, and he said he had a most sharpe pricking paine at the entrance of the Bullet. I doe believe and thinke it might bee some little peeces of bones which prickt the Lungs. When they made their Systole and Diastole, I put my finger into him; where I found the entrance of the Bullet to have broken the fourth Rib in the middle and scales of bones which the said Bullet had thrust in, and the outgoing of it had likewise broken the fift Rib with peeces of bones which had beene driven from within outward; I drew out some but not all, because they were very deepe and adherent. I put in each wound a Tent, having the head very large, tyed with a thread, least by the inspiration it might bee drawne into the capacity of the *Thorax*, which hath beene knowne by experience to the detriment of the poore wounded; for being fallen in, it cannot be taken out, which is the cause that engenders putrifaction, a thing contrary to nature. The said Tents were annointed with a medicine compos'd of yolks of Egges, *Venice Turpentine*, with a little oyle of Roses: My intention for putting the Tents was to stay the flux of blood, and to hinder that the outward ayre did not enter into the breast, which might have cooled the Lungs and by consequent the heart. The said Tents were also put, to the end that issue might bee given for the blood that was spilt within the *Thorax*. I put upon the wound great Emplaisters of *Diacalcithea* in which I had relented oyle of Roses and Vinigar to the avoyding of inflammation, then I put great stipes of *Oxyrate*, and bound him up, but not hard, to the end he might have easie respiration; that done I drew from him five porringers of blood from the Basilicke veine of the right arme, to the end to make revulsion of the blood which runs from the wounds into the *Thorax*, having first taken indication from the wounded part, and cheefely his forces, considering his youth and his sanguine temper; Hee presently after went to stoole, and by his urine and seege cast great quantity of blood. And as for the paine which he said he felt at the entrance of the Bullet which was as if he had beene pricked with a bodkin, that was because the Lungs by their motion beate against the splinters of the broken Rib. Now the Lungs are covered with a coate comming from the membrane called *Pleura*, interweaved with nerves of the sixt conjugation from the braine, which was cause of the extreame paine he felt; likewise he had a great difficultie of breathing, which proceeded from the blood which was spilt in the capacitie of the *Thorax*, and upon the *Diaphragme*, the principall instrument of respiration, and from the dilaceration of the muscles which are betweene each Rib, which helpe also to make the expiration and the inspiration; and likewise because the Lungs were torne and wounded by the Bullet, which hath caused him ever since to spit blacke and putrid blood in coughing. The Feaver seized him soone after he was hurt, with faintings and swoonings.

nings. It seemed to mee that the said feaver proceeded from the putredinous vapours arising from the blood which is out of his proper vessels, which hath fallen downe, and will yet flow downe. The wound of the Lungs is growne great and will grow more great, because it is in perpetuall motion, both sleeping and waking, and is dilated and comprest to let in the aire to the heart, and cast fuliginous vapours out: by the unnaturall heate is made inflammation, then the expulsive vertue is constrained to cast out by cough whatsoever is obnoxious unto it: for the Lungs cannot be purged but by coughing, & by coughing the wound is dilated, and growes greater, from whence the blood issues out in great abundance, which blood is drawne from the heart by the veine arteriall to give them nourishment, and to the heart by the *vena cava*; his meate was barly broth, stewed prunes, sometimes *panado*; his drinke was Prisan: He could not lye but upon his backe which shewed he had a great quantity of blood spilt within the capacity of the *Thorax*, and being spread or spilled along the spondills, doth not so much presse the Lungs as it doth being laid on the sides or sitting.

What shall I say more, but that the said Lord *Martignes* since the time hee was hurt hath not reposed one houre onely, and hath alwayes cast out bloody urines and stooles. These things then *Messieres* considered, one can make no other prognosticke but that he will dye in a few dayes, which is to my great greefe. Having ended my discourse I drest him as I was wont; having discovered his wounds, the Physitions and other assistants presently knew the truth of what I had said.

The said Physitions having felt his pulse and knowne his forces to be almost spent, and abolished, concluded with mee that in a few dayes he would dye; and at the same instant went all toward the Lord of *Savoy*, where they all said, that the said Lord *Martignes* would dye in a short time; he answered, it were possible if hee were well drest he might escape: Then they all with one voyce said, hee had beene very well drest, and solicited with all things necessary for the curing of his wounds, and could not be better, and that it was impossible to cure him, and that his wound was mortall of necessity. The Monsieur de *Savoy* shewed himselfe to bee very much discontented and wept, and asked them againe if for certaine they all held him deplored and remediless, they all answered, yes. Then a certaine *Spanish* impostor offered himselfe, who promised on his life that he would cure him, and if he failed to cure him, they should cut him in an hundred peeces; but he would not have any Physitions, Chirurgions or Apothecaries with him. And at the same instant the sayd Lord of *Savoy* told the Physitions and Chirurgions they should not in any wise goe any more to see the sayd Lord of *Martignes*. Also he sent a Gentleman to me to forbid me upon paine of life not to touch any more the said Lord of *Martignes*, which I promised not to doe; wherefore I was very glad, seeing he should not dye in my hands, and commanded the said impostor to dresse the said Lord of *Martignes*. And that he should have no other Physitions nor Chirurgions but him; he came presently to the said Lord of *Martignes*, who told him,

Senor Cavallero el señor Dugue me ha mandado que viniesse a curar vuestra herida, yo os juro á Dios que antes de ocho dias yo os haga subir a Cavallo con la lanza en puno con tal que no ago que yo quos togue, Comeréis y biberéis todas comidas que fueren de vuestro gusto y yo hare la dieta pro V. m. y desto os de ven asegurar sobre de mi, yo he sanado man vos que tenían magores heridas que la voftra. That is to say, Lord Cavalleere, Monsieur the Duke of *Savoy* hath commanded me to come dresse thy wound; I sweare to thee by God, that before eight dayes I will make thee mount on horsebacke with thy Lance in thy hand, provided, that no man may touch thee but my selfe; thou shalt eat and drinke any thing thou hast a minde to, I will performe thy diet for thee, and of this thou maist be assured upon my promise, I have cured divers who have had greater wounds than thine: and the Lord replied, God give you the grace to doe it.

He demanded of the sayd Lord a shirt and tore it in little ragges, which hee put a crosse, muttering, and murmuring certaine words over the wound; and having drest him, permitted him to eat and drinke what he would, telling him hee would observe a dyet for him, which he did, eating but six prunes and sixe bits of bread at a meale

meale, and drinking but beere. Notwithstanding, two dayes after, the sayd Lord of *Marrignes* dyed; and my *Spaniard*, seeing of him in the agony, eclipsed himselfe and got away without bidding, farewell to any body; and I beleeeve if he had bene taken he had bin hang'd for his false promises, which he had made to Monsieur the Duke of *Savoy*, and to divers other gentlemen.

He dyed about tenne of the clocke in the morning, and after dinner, the sayd Lord of *Savoy*, sent Physitions and Chirurgions and his Apothecary, with a great quantity of Drogues, to embalme him; they came accompanied with divers gentlemen and Captaines of the Army.

The Emperors Chirurgion came neere to me, and prayed me kindly to open the body; which I refused, telling him I was not worthy to carry his plaster boxe after him: he prayed me againe, which then I did for his sake, if it so liked him. I would yet againe have excused my selfe, that seeing he was not willing to embalme him, that he would give this charge to another Chirurgion of the company; he made me yet answere, that he would it should be I, and if I would not doe it, I might hereafter repent it: knowing this his affection, for feare he should not doe me any displeasure, I tooke the rasor and presented it to all in particular, telling them I was not well practised to doe such operations which they all refused.

The body being placed upon a table, truly I purposed to shew them that I was an Anatomist, declaring to them diverse things, which should be heere too long to recite. I began to tell all the company that I was sure the bullet had broken two ribs, and that it had past through the Lungs, and that they should finde the wound much enlarged, because they are in perpetuall motion, sleeping or waking, and by this motion the wound was the more dilacerated. Also that there was great quantity of blood spilt in the capacity of the brest, and upon the midriffe, and splinters of the broken ribbes which were beaten in at the entrance of the bullet, and the issuing forth of it, had carried out. Indeed all which I had told them was found true in the dead body.

One of the Physitions asked me, which way the blood might passe to be cast out by Urine, being contained in the *Thorax*. I answered him that there was a manifest conduit, which is the *Vena Azygos*, who having nourisht the ribbes, the rest of the blood descends under the *Diaphragme*, and on the left side is conjoynd to the emulgent veine, which is the way by which the matter in *pleuresies* and in *Empiema*, doe manifestly empty themselves by urine and stoole. As it is likewise seene, the pure milke of the brests of women newly brought to bed, to descend by the *Mammillary* Veines, and to be evacuated downewards by the necke of the wombe without being mixt with the blood. And such a thing is done (as it were by a miracle of nature) by her expulsive and sequesting vertue, which is seene by experience of two glasse vessels called Mount-wine; let the one be filled with water, and the other with Claret wine, and let them be put the one upon the other, that is to say, that which shall bee filled with water, upon that which shall be filled with wine; and you shall apparently see the wine mount up to the top of the vessell quite through the water, and the water descend atraverse the wine, and goe to the bottome of the vessell without mixture of both; and if such a thing be done so exteriorly and openly to the sense of our eye, by things without life: you must beleeeve the same in our understanding. That nature can make matter and blood to passe, having bene out of their vessels yea through the bones without being mingled with the good blood.

Our discourse ended, I embalmed the body, and put it into a Coffinne; after that the Emperors Chirurgion tooke me apart, and told me if I would remaine with him that he would use me very well, and that he would cloath me anew, also that I should ride on horsebacke. I thanked him very kindly for the honour he did me, and told him that I had no desire to doe service to strangers, and enemies to my Countrey; then he told mee I was a foole, and if he were prisoner as I, hee would serve the divell to get his liberty. In the end I told him flat that I would not dwell at all with him.

The Emperors Physition returned toward the sayd Lord of *Savoy*, where he declared the cause of the death of the sayd Lord of *Marrignes*, and told him that it was impossible

impossible for all the men in the world to have cured him; and confirmed againe, that I had done what was necessary to be done, and prayed him to winne mee to his service, and spoke better of me than I deserved.

Having beene perswaded to take me to his service, he gave charge to one of his stewards named Monsieur *du Bouchet*, to tell me, if I would dwell in his service that he would use me kindly: I answered him, that I thank't him most humbly, and that I had resolved not to dwell with any stranger. This my answer being heard by the Duke of *Savoy*, he was somewhat in choller, and sayd, hee would send mee to the Gallies.

Monsieur *de Vandeville*, Governour of *Gravelin*, and Colonell of seaventeene Ensignes of foote, prayed him, to give me to him, to dresse him of an Ulcer which he had in his Leg this six or seaven yeares; Monsieur *de Savoy* told him because I was of worth, that he was content, and if I ranckled his Leg it would be well done; Hee answered that if hee perceaved any thing, that hee would cause my throate to be cut.

Soone after, the said Lord of *Vandeville* sent for me by fowre Germane Halberdiers, which affrighted me much, not knowing whither they led mee, they spake no more *French* than I high *Dutch*; being arrived at his lodging, he told mee I was welcome, and that I was his; and as soone as I should have cured him of that Ulcer in his Leg, that he would give me leave to be gone without taking any rancome of me. I told him I was not able to pay any rancome.

Then he made his Physition and Chirurgions in ordinary to shew mee his ulcerated Leg; having seene and considered it, we went apart into a Chamber where I began to tell them, that the said Ulcer was annuall, not being simple but complicated: that is to say, of a round figure, and scaly, having the lips hard and callous, hollow and fordid, accompanied with a great varicous veine which did perpetually feede it; besides a great tumor, and a phlegmonous distemper very painefull through the whole Leg, in a body of cholericke complexion; as the haire of his face and beard demonstrated. The method to cure it (if cured it could be) was to begin with universall things, that is, with purgation and bleeding, and with this order of dyet, that hee should not use any wine at all, nor any salt meares, or of great nourishment, chiefly these which did heat the blood: afterward the cure must begun with making divers scarifications about the Ulcer, and totally cutting away the callous edges or lips, and giving a long or a triangular figure, for the round will very hardly cure, as the Ancients have left it in writing, which is seene by experience. That done, the filth must be mundified, as also the corrupted flesh, which should be done with *Vnguentum Egyptiacum*, and upon it a bolster dipt in juice of Plantaine and Nightshade and *Oxycrate*, and roule the Leg beginning at the foote, and finishing at the knee, not forgetting a little bolster upon the *Varicous* veine, to the end no superfluities should flow to the Ulcer. Moreover that he should take rest in his bed, which is commanded by *Hippocrates*, who saith, that those who have soare Legs should not use much standing or sitting, but lying along. And after these things done and the Ulcer well mundified, a plate of Lead rubbed with quioke silver should be applyed. See then the meanes, by which the said Lord *Vandeville* might be cured of the said Ulcer; all which they found good. Then the Physition left mee with the Chirurgion, and went to the Lord *Vandeville*, to tell him that he did assure him I would cure him, and told him all that I had resolved to doe, for the cure of his Ulcer: whereof hee was very joyfull. He made mee to bee called to him, and asked me if I was of the opinion that his Ulcer could be cured, and I told him, yes, provided he would be obedient to doe what he ought. He made me a promise hee would performe all things which I would appoint; and as soone as his Ulcer should be cured, he would give me liberty to returne without paying any rancome. Then I beseecht him to come to a better composition with me, telling him that the time would be too long to bee in liberty, if I stayd till hee was perfectly well, and that I hoped within fiftene dayes the Ulcer should bee diminished more than one halfe, and it should bee without paine, and that his Physitions and Chirurgions would finish the rest of the cure very easily. To which hee agreed, and then I tooke a peece

of paper, and cut it the largenesse of the Vlcer, which I gave him, and kept as much my selfe. I prayd him to keepe promise, when he should finde his businesse done: He swore by the faith of a Gentleman he would doe it; then I resolved to dresse him well, according to the method of *Galen*, which was, that after all strange things were taken out of the Vlcer, and that there wanted nothing but filling up with flesh, I drest him but once a day, and he found that very strange. And likewise his physition which was but a fresh man in those affaires, who would perswade mee with the Patient, to dresse him two or three times a day, I prayd him to let me doe what I thought good; and that it was not to prolong the cure, but on the contrary to hasten it, for the great desire I had to be in liberty. And that he would looke in *Galen* in the fourth book of the composition of medicaments *secundum genera*, who saith, that if a medicine doe not remaine long upon the part it profits not so much, as when it doth continue long, a thing which many Physitions have beene ignorant of, and have thought it hath beene better to change the Plaster often. And this ill custome is so inveterate and rooted, that the Patients themselves accuse oftentimes the Chirurgions of negligence, because they doe not oftner remove their emplaisters; but they are deceived. For as you have understood and read in my workes in divers places: The qualities of all bodies which mutually touch, operate one against another, and both of them suffer something, where one of them is much stronger than the other, by meanes whereof the said qualities are united, they familiarise with the time, although they are very much differing from the manner, that the quality of the medicament doth unite, and sometimes becomes like to that of the body, which is a very profitable thing. Therefore they say, he is to be praised much who first invented not to change the Plasters so often, because it is knowne by experience, this is a good invention.

Moreover it is said, great fault is committed to dresse Vlcers often in wiping of them hard, for one takes not away onely the unprofitable excrement, which is the *pus* or *Sanies* of the Vlcer, but the matter whereof the flesh is engendred; wherefore for the reasons aforesaid it is not needefull to dresse Vlcers so often.

The said Lord *Vandeville*, would see whether that which I alledged out of *Galen* were true, and commanded the said Physition to looke there, for that hee would know it; he caused the booke to be brought upon the table, where my saying was found true, and then the Physition was ashamed, and I very joyfull. So that the said Lord of *Vandeville* desired not to bee dressed but once a day, in so much that within fiftene dayes the Vlcer was almost cicatrized; the composition being made betweene us, I began to be merry. He made me eate and drinke at his Table, when there was not men of more great ranke with him.

He gave me a great red earse, which hee commanded me to weare. I may say I was as glad of it as a dog that hath a clog, for feare he should goe into the vineyard and eate the grapes. The Physition and Chirurgeon led mee through the Campe to visit their hurt people, where I tooke notice what our enemies did; I perceived they had no more peeces of Cannon, but onely twenty five or thirty peeces for the field.

Monfieur de *Vandeville* held Monfieur de *Bauge* prisoner, the brother of Monfieur de *Martigues* who dyed at *Hedin*. The said Lord of *Bauge* was prisoner in the Castle of the heape of wood belonging to the Emperour, who had beene taken at *Therouenne* by two *Spanish* Souldiers. Now the said Lord of *Vandeville* having looked well upon him, conceived he must be a Gentleman of some good house, and to be the better assured, he caused him to have his stockings pulled off, & seeing his stockings and his feete cleare and neate, together with his white fine socke, it confirmed him the better in his opinion, that it was a man was able to pay some good ransome. He demands of the Souldiers if they would take thirty Crownes for their prisoner, and that he would give it to them presently, to which they agreed willingly, because they had neither meanes to keepe him, nor feede him; besides they knew not his worth, therefore they delivered their prisoner into the hands of the said Lord of *Vandeville*, who presently sent him to the Castle of the heape of wood with a guard of foure Souldiers with other Gentlemen prisoners of ours. The said Lord *Bauge* would

would not discover himselfe, who hee was, and endured very much, being kept but with bread and water, and lay upon a little straw. The said Lord of *Vandeville* after the taking of *Hedin*, sent word to the said Lord *Bauge* and other prisoners, that the place of *Hedin* was taken, and the list of those that had beene slaine, and amongst the rest, Monsieur de *Martignes*; and when the said Lord of *Bauge* heard the sound of the death of his brother the Lord *Martignes*, he began much to weepe and lament; his keeper demanded of him, why he made so many & so great lamentations? He declared unto them that it was for Monsieur de *Martignes* his brothers sake. Having understood that, the Captaine of the Castle dispatcht a man away quickly, to tell it to Monsieur de *Vandeville* that he had a good prisoner; who having received this good newes rejoiced greatly, and the next day sent me with his phyfition and foure Souldiers to the wood Castle to know if his prisoner would give him fiftene thousand Crownes for a ransome; he would send him free to his owne house, and for the present he desired but the security of two Merchants of *Antwerp*, that hee would name. The said Lord *Vandeville* perswaded me that I would make his agreement with his prisoner. See then why he sent me to the wooden Castle, and commanded the Captaine of the Castle to use him well, and to put him into a Chamber hung with Tapstrie, and that they should make his guard more strong, and from that time they made him good cheare at his expence.

The answer of the said Lord of *Bauge* was, that to put himselfe to ransome hee was not able; and that, that depended upon Monsieur d'*Estamps* his Vnckle, and of Monsieur de *Bressure* his Aunt, and that he had not any meanes to pay such a ransome. I returned with my keepers to the said Lord *Vandeville*, and told him the answer of his said prisoner, who told me, Perhaps he should not out at so good a rate, which was true, for he was discovered. And forthwith the Queene of *Hungary*, and the Duke of *Savoy* sent word to the Lord *Vandeville*, that this morsell was too great for him, and that he must send him to them, (which he did) and that he had enough prisoners besides him: he was put to forty thousand Crownes ransome besides other expenses.

Returning toward the said Lord *Vandeville* I passed by *S. Omer*, where I saw their great peeces of battery, whereof the greatest part was flawed and broken. I came backe also by *Therouenne*, where I did not see so much as stone upon stone, unlesse the marke of a great Church. For the Emperour gave commandement to the country people within five or six leagues about, that they should empty and carry away the stones; in so much, that now one may drive a Cart over the Citty, as is likewise done at *Hedin*, without any appearance of Castle or Fortresse. See then the mischeefe which comes by the warres.

And to returne to my purpose, presently after my said Lord *Vandeville* was very well of his Ulcer and little wanted of the entire cure, which was the cause hee gave me my leave, and made me be conducted with a Pasleport by a Trumpet to *Abbeville*, where I tooke post, and went and found the King *Henry* my Master at *Aufimon*, who received me with joy, and a good countenance.

He sent for the Duke of *Guise* the high Constable of *France*, and Monsieur d'*Estrez*, to understand by me what had past at the taking of *Hedin*; and I made them a faithfull report, and assured them I had seene the great peeces of Battery, which they had carried to *S. Omer*. Whereof the King was very joyfull, because hee feared least the enemy should come further into *France*. He gave me two hundred Crownes to retire my selfe to my owne house, and I was very glad to bee in liberty and out of this great torment and noise of Thunder from the Diabolicke artillery, and farre from the Souldiers, blasphemers and deniers of God. I will not omit to tell here that after the taking of *Hedin*, the king was advertised that I was not slaine, but that I was a prisoner, which his Majestie cauled to be written to my wife by Monsieur de *Gogulier* his cheefe Phyfition, and that shee should not be in any trouble of mind for me, for that I was safe and well, and that he would pay my ransome.

The Battell of S. Quintin. 1557.

After the battell of *S. Quintin*, the King sent me to the Fere in *Tartemis* toward Monsieur the Marshall of *Bourdillon*, to have a Pasleport by the Duke of *Savoy* to goe to dresse Monsieur the Constable, who was grievously hurt with a Pistoll shot in the backe, whereof hee was like to dye, and remained a prisoner in his enemies hands. But the Duke of *Savoy* would never give consent that I should goe to the said Lord Constable, saying hee should not remaine without a Chirurgion, and that he doubted I was not sent onely to dresse him, but to give him some advertisement, and that he knew I understood something else besides Chirurgery, and that he knew me to have beene his prisoner at *Hedin*. Monsieur the Marshall of *Bourdillon* advertized the King of the Dukes deniall, by which meanes the King writ to the said Lord of *Bourdillon*, that if my Lady, the Lord high Constables wife, did send any body of her house, which was an able man, that I should give him a letter, and that I should also have told him by word of mouth, what the King and Monsieur the Cardinall of *Lorraine* had given me in charge. Two dayes after there arrives a servant of the Lord Constables Chamber, who brought him shirts, and other linnen, for which the sayd Lord Marshall gave Pasle-port, to goe to the sayd Lord Constable; I was very glad thereof, and gave him my letter, and gave him his lesson, of that which his Master should doe, being prisoner. I had thought being discharged of my embassage to returne toward the King. But the sayd Lord of *Bourdillon* pray'd me to stay with him at the Fere to dresse a great number of people who were hurt, and were thither retired after the battell; and that he would send word to the King, the cause of my stay; which I did. The wounds of the hurt people were greatly stinking, and full of wormes with Gangreene and putrifaction; so that I was constraigned to come to my knife to amputate that which was spoyle, which was not without cutting off armes and legges, as also to Trepan diverse. Now there were not any medicines to be had at the Fere, because the Chirurgions of our Campe had carried all with them; I found out that the Chariot of the Artillery carried behind at the Fere, nor had it yet beene touched. I prayd the sayd Lord Marshall that he would cause some of the drogues to be delivered unto me which were in it; which he did, and there was given to me, one halfe onely at a time: and five or sixe dayes after I way constraigned to take the rest, neither was there halfe enough to dresse so great a number of the people, and to correct and stay the putrifaction, and to kill the wormes which were entred into their wounds; I washed them with *Agyptiacum* dissolved in wine and *Aqua vita*, and did for them, all which I could possible, yet notwithstanding all my diligence, very many of them dyed.

There were Gentlemen at the Fere who had charge to finde out the dead body of Monsieur de *Bois-Dolphin* the elder, who had beene slaine in the battell; they prayed me to accompany them to the Campe to finde him out amongst the dead, if it were possible, which indeed was impossible; seeing that the bodyes were all disfavoured and overwhelmed with putrefaction. We saw more than halfe a league about us the earth covered with dead bodyes; neither could we abide long there, for the cadaverous fents, which did arise from the dead bodyes, as well of men, as of horses. And I thinke we were the cause, that so great a number of flies, rose from the dead bodies, which were procreated by their humidity and the heate of the Sunne, having their tayles greene and blew; that being up in the ayre made a shadow in the Sunne. We heard them buzze, or humme, which was much mervaille to us. And I thinke it was enough to cause the Plague, where they alighted. (My little master) I would you had beene there as I was, to distinguish the ordures and also to make report to them which were never there. Now being cloyed and annoyed in that Countrey, I prayd Monsieur the Lord Marshall, to give me my leave to be gone, and that I was affrayd I should be sicke, by reason of my too great paines, and the stinckes which did arise from the wounded bodyes, which did almost all dye, for what diligence soever was used unto them. He made other Chirurgions, to come
finish

finish the dressing of the sayd hurt people, and I went away with his good grace and favour. He wrote a letter to the King, of the paines I had taken with the poore wounded. Then I returned to *Paris*, where I found yet many Gentlemen who had beene hurt, and were there retired after the battell.

The Voyage of the Campe of Amiens, 1558.

THe King sent me to *Dourlan*, and made me to be conducted by Captaine *Govaſt* with fifty men in armes, for feare I should be taken by the enemies. And seeing that in the way we were alwayes in alarums, I caused my man to alight, making him to be my master for that time, and I got upon his horse, which carryed my male, and tooke his cloake and hat, and gave him my ambling Mare. My man being upon her backe, one would have taken him for the master, and I for the servant. Those of *Dourlan* seeing us farre off, thought we were enemies, and let flye their Cannon shot at us. Captaine *Govaſt* my conductor, made signe with his hat, that we were not enemies, so that they left shooting, and we entred into *Dourlan* with great joy. Those of *Dourlan* made a sally forth, upon the enemies five or sixe dayes before, who kild and hurt diverse of our Captaines, and good souldiers; and amongst the rest Captaine *St. Aubin* valiant at the sword, whom Monsieur *de Guise* loved very well, and for whom chiefly the King sent me thither, who being in the fit of a quartaine feaver, would needes goe out to command the greatest part of his company: a Spaniard seeing him that he commanded, perceiv'd hee was a Captaine, and shot a musket bullet quite through his necke; my Captaine *Saint Aubin* thought with this stroake he was dead, and with the feare (I protest to God) he lost his quartane ague; and was altogether freed from it. I dressed him with *Anthony Portall* Chirurgion in ordinary to the King, and divers other Souldiers: some dyed, others escaped quit with the losse of a legge, or an arme, or the losse of an eye, and they sayd they escaped good cheape, escape that can. When the enemy had broke their Campe, I returned to *Paris*. Heere I hold my peace of my little master, who was more at ease in his house than I at the Warres.

The voyage of Harbor of Grace, 1563.

YEt I will not omit to speake of the voyage of the *Harbor of Grace*; then when they made the approaches to plant the Artillery, the English who were within it kild some of our Souldiers, & divers Pioners, who undermined, who when they were seene to be so hurt that there was no hope of curing, their fellowes stript them & put them yet alive, in the mines, which served them for so much filling earth. The English seeing they could not withstand an assault, because they were very much attainted with diseases, and chiefly with the Plague, they yeelded, their lives and jewells saved. The King caused them to have shippes to returne to *England*, being glad to be out of this place infected with the Plague: the greatest part dyed, and carryed the Plague into *England*, and since have not yet beene exempted. Captaine *Sarlabous* master of the Campe, was left there in garrison, with sixe Ensignes on foote, who had no feare of the Plague, and were very joyfull to enter therein, hoping there to make good cheere. My little master had you beene there you had done as they.

The Voyage to Roüen, 1562.

Now for the taking of *Roüen* they kild divers of ours before the assault, and at the assault: the day after they entred into the Citty, I Trepaned eight or nine, who were hurt at the breach with the stroakes of stones. There was so malignant an ayre, that divers dyed, yea of very small hurts, insomuch that some thought they had poysoned their bullets: those within sayd the like by us, for although they were well treated in their necessities within the Citty, yet they dyed also aswell as those without. The King of *Navar* was hurt in the shoulder with a bullet some few dayes before the assault; I visited and helpt to dresse him, with his owne Chirurgion, named

med Master *Gilbert* one of the chiefe of *Montpelier*, and others. They could not finde the bullet, I searcht for it very exactly, I perceived by conjecture, that it was entred by the head of the *Adiutorium*, and that it had runne into the cavity of the sayd bone, which was the cause we could not finde it. The most part of them sayd it was entred and lost within the cavity of the body. Monsieur the Prince of the *Rocke upon Ton*, who intimately loved the King of *Navarre*, drew me to one side, and askt me if the wound was mortall. I told him yea, because all wounds made in great joynts, and principally contused wounds, were mortall according to all Authors who have written of them. He enquired of the others what they thought, and chiefly of the sayd *Gilbert*, who told him that hee had great hope that the King his master, would be cured, and the sayd Prince was very joyfull. Foure dayes after the King and the Queene mother, Monsieur the Cardinall of *Bourbon* his brother, Monsieur the Prince of *Rocke upon Ton*, Monsieur *de Guise*, and other great personages, after we had dressed the King of *Navarre*, caused a consultation to be made in their presences, where there was diverse Physitions and Chirurgions: each man sayd what seemed good unto him, and there was not one of them, who had not good hope of him; saying that the King would be cured, and I persisted alwayes on the contrary.

Monsieur the Prince of the *Rocke upon Ton* who loved me, withdrew me aside, and sayd I was onely against the opinion of all the rest, and prayd me not to be obstinate against so many worthy men. I answered him, that when I saw any good signes of cure, I would change my advise. Divers consultations were made, where I never changed my word, and prognosticke, such as I had made at the first dressing, and alwayes sayd that the arme would fall into a Gangrene, which it did, what diligence soever could be had to the contrary; and gave up his soule to God the eighteenth day of his hurt. Monsieur the Prince *Vpon Ton*, having heard of the death of the sayd King, sent his Physition and Chirurgion toward me, named *Feure* now in ordinary to the King, and to the Queene Mother, to tell me, that he would have the bullet taken out, and that it should be lookt for in what place so ever it could be found: then I was very joyfull, and told them that I was well assured to finde it quickly, which I did in their presences, and divers gentlemen. It was lodged in the very midst of the cavity of the *Adiutory* bone. My sayd Prince having it, shewed it to the King and the Queene, who all sayd, my prognosticke was found true. The body was layd to rest in the Castle *Galliard*, and I returned to *Paris*, where I found divers hurt men who were hurt at the breach at *Rouen*, and chiefly *Italians*, who desired me very much to dresse them, which I did willingly; there were divers that recovered; and others dyed. I beleeve (my little master) you were called to dresse some of them, for the great number there was of them.

The Voyage of the battell of Dreux 1562.

THE day after the battell given at *Dreux*, the King commanded me, to goe dresse Monsieur the Count of *Eu*, who had beene hurt with a Pistoll shot in the right thigh, neere the joynt of the hippe; which fractured and broke the *Os femoris* in divers places, from whence divers accidents did arise, and then death, which was to my great greefe. The day after my arrivall I would goe to the field, where the battell was given, to see the dead bodyes; I saw a league about, all the earth covered, where there was by estimation five and twenty thousand men, or more. All which were dispatcht in the space of two houres. I would (my little master) for the love I beare you, that you had beene there to recount it to your schollers and to your children. Now in the meane time while I was at *Dreux* I visited and drest a great number of gentlemen and poore Souldiers, & amongst the rest many *Swisser* Captaines, I dressed 14 in one chamber, onely all hurt with Pistoll shot, and other instruments of Diabolicall fire, and not one of the foureteene dyed. Monsieur the Count of *Eu* being dead, I made no long tarrying at *Dreux*: there came Chirurgions from *Paris* who performed well their duty toward the hurt people, as *Pigray*, *Cointeret*, *Hubert*, and others; and I returned to *Paris*, where I found diverse gentlemen wounded, who had retired themselves thither after the battell to be drest of their hurts.

The Voyage of the battell of Moncontour. 1569.

DVring the battell of *Moncontour* King *Charles* was at *Plessis* the Towers, where he heard they had wonne it; a great number of hurt gentlemen and Souldiers with drew themselves into the Citty and suburbs of Towers, to be drest and helpt, where the King and Queene Mother commanded me to shew my duty with the other Chirurgions, who were then in quarter, as *Pigray*, *du Bois*, *Portail*, and one named *Siret*, a Chirurgion of Towers, a man very skilfull in Chirurgery, and at that time Chirurgion to the Kings brother; and for the multitude of the wounded wee were but little in repose, nor the Physitions likewise. Count *Mansfield* Governor of the *Duchy of Luxembourg*, Knight of the King of *Spaines* order, was greatly hurt in the battell, in the left arme, with a Pistoll shot, which broke a great part of the joynt of the elbow, and had retired himselfe to *Bourgneil* neere Towers; being there he sent a gentlemen to the King, affectionately to beseech him to send one of his Chirurgions to helpe him in his hurt. Counsell was held what Chirurgion should be sent. Monsieur the Marshall of *Montmorency* told the King and the Queene, that it were best to send him his cheefe Chirurgion, and declared to them that the sayd Lord *Mansfield* was one part of the cause of winning the battell. The King sayd flat he would not that I should goe, but would have me remaine close to him. Then the Queene Mother sayd, I should but goe and come, and that he must consider it was a strange Lord, who was come from the King of *Spaines* side, to help and succour him. And upon this he permitted me to goe, provided that I should returne quickly. After this resolution he sent for me, and likewise the Queene Mother, and commanded me to goe finde the sayd Lord *Mansfield* in the place, where I was to serve him in all I could, for the cure of his hurt; I went and found him, having with me a letter from their Majesties: having seene it, he received me with a good will, and from thenceforth discharged three other Chirurgions that drest him; which was to my great greefe, because his hurt seemed to me uncureable. Now at *Bourgneil* there were retired divers gentlemen, who had beene hurt at the sayd battell, knowing that Mounsieur *de Guise* was there, who had beene also very much hurt with a Pistoll shot through one legge, well assured that he would have good Chirurgions to dresse him, and also that hee being kind and liberall, would assist them with a great part of their necessities. And for my part, I did helpe and ayd them in my Art as much as it was possible, some dyed, some recovered, according to their hurts. The Count *Ringrave* died, who had such a shot in the shoulder, as the King of *Navarre* before *Rouen*; Monsieur *de Bassompierre* Colonell of twelve hundred horse, was hurt also in such a like place as Count *Mansfield*, whom I drest and God cured. God so well blessed my worke that within three weekes I led him back to *Paris*, where I must yet make some incisions in the arme of the sayd Lord *Mansfield*, to draw out the bones which were greatly broken and caries'd: he was cured by the grace of God, and gave me an honest reward, so that I was well contented with him and he with me, as he hath since made it appeare: he writ a letter to the Duke of *Ascot* how that he was cured of his hurt, and also Monsieur *de Bassompierre* of his, and divers others, which I had drest't after the battell of *Moncontour*, and counselled him to beseech the King of *France* my good master, to give me leave to goe see Monsieur the Marquesse of *Aures* his brother.

Voyage of Flanders.

Monsieur the Duke of *Ascot* did not faile to send a Gentleman to the King with a letter, humbly to beseech him to doe him so much good and honour, as to permit and command his cheefe Chirurgion to come see the Marquesse of *Auret* his brother; who had received a Musket shot neare the knee, with fracture of the bone, about seaven monthes since, with the Physitions and Chirurgions in those parts were much troubled to cure. The King sent for me, and commanded me to goe see the said Lord *Auret*, and to helpe him in all that I could for the cure of his hurt; I told him I would imploy all that little knowledge which it had pleased God to give me. I went then conducted by two Gentlemen to the Castle of *Auret*, which is a league and a halfe from *Mounts* in *Hainaut*, where the said Marquesse was: as soone as I arrived I visited him, and told him the King had commanded me to come see him, and to dresse him of his hurt; he told me he was glad of my coming, and was much bound to the King to have done him the honour, to have sent me to him. I found him in a great Feaver, his eyes very much sunke, with a countenance gastly and yellow, his tongue drie and rough, and all the body emaciated and leane, his speech low like that of a dying man: then I found his thigh much swelled, apostemated, ulcerated, and casting out a greene stinking matter; I searcht it with a silver probe, and by the same I found a cavity neare the groyne, ending in the middle of the thigh, and others about the knee, sanious and coniculous; also certaine scales of bones some separated, others not. The Legge was much tumified, and soaked with a pituitous humor, cold, moist, and flatulent; in so much that the naturall heate was in the way to be suffocated, and extinguished, and the said Legge crooked and retracted toward the buttockes, his rumpe ulcerated the breadth of the palme of an hand, and he said he felt there a great paine and smarting, and likewise in his reines, in so much that hee could not take any rest night or day; neither had hee any appetite to eate, but to drinke enough; it was told mee hee fell often into faintings and swoonings, and sometimes as it were into an Epilepsie, and had oftentimes desire to vomit, with such a trembling that hee could not carry his hands to his mouth. Seeing and considering all these great accidents, and the forces much abated; truly I was much grieved to have gone to him, because me thought there was little appearance that he could escape. Notwithstanding to give him courage and good hope, I told him, that I would quickly set him on foote by the grace of God, and the Physitions and Chirurgions helpe. Having seene him, I went a walking into a Garden, where I prayed to God that hee would give me the grace to cure him, and that hee would give a blessing to our hands, and medicaments, to combat against so many complicated maladies. I bethought in my minde the wayes I must keepe to doe it. They called mee to dinner, I entred into the kitchin where I saw taken out of a great pot, halfe a Mutton, a quarter of Veale, three great peeces of Beeffe, and two Pullers, and a great peece of Bacon, with great store of good Hearbes. Then I said to my selfe this broth was full of juice, and of good nourishment; After dinner all the Physitions and Chirurgions assembled, we entred into conference in the presence of Monsieur the Duke of *Ascot*, and some Gentlemen that did accompany him; I began to tell the Chirurgions that I marvelled much they had made no apertions in the Marquesses thigh, which was all apostemated, and the matter which issued out was very foule and stinking, which shewed it had a long time lurked there, and that I had found with my probe a *Caries* in the bone, and small scales which were already separated; they made mee answer, hee would never give consent, and likewise it was almost two monthes since they could winne him to put on cleane sheets on his bed, neither durst one scarce touch the coverlet, he felt so great paine. Then said I, for to cure him, we must touch other things than the coverlet of the bed. Each one said what hee thought best of the Lords greefe, and for conclusion held it altogether deplorable. I told them there was yet some hope, because of his youth, and that God and nature doe sometime such things which seeme to Physitions and Chirurgions to bee impossible. My consultation

was, that all these accidents were come by reason of the bullet hitting neare the joynt of the knee, which had broken the Ligaments, tendons, and *aponeuroses* of the muscles which tie the sayd joynt together with the *Os femoris*; also nerves, veines, and arteries from whence had followed paine, inflammation, aposteme and ulcer: and that wee must begin the cure by the disease, which was the cause of all the sayd accidents, that is to say, to make apertions to give issue to the matter retained in the interspaces of the muscles, and in the substance of them: Likewise to the bones which caused a great corruption in the whole thigh, from whence the vapors did arise and were carryed to the heart, which caused the syncope, and the feaver; and the feaver an universall heate through the whole body; and by consequent, depravation of the whole *Oeconomie*; Likewise that the said vapours were communicated to the braine, which caused the Epilepsie, and trembling, and to the stomacke disdaine and loathing, and hindred it from doing his functions, which are cheefely to concoct and digest the meate, and to convert it into *Chylus*; which not being well concocted, they ingender crudities and obstructions, which makes that the parts are not nourished, and by consequent the body dries, and growes leane; and because also it did not doe any exercise, for every part which hath not his motion remaineth languid, and *atrophied*, because the heate & spirits are not sent or drawne thither, from whence followes mortification. And to nourish and fatten the body, frictions must be made universally through the whole body, with warme linnen cloathes, above, below, on the right side, and left, and round about: to the end to draw the blood and spirits from within outward, and to resolve any fuliginous vapours retained betweene the skinn, and the flesh; thereby the parts shall be nourished and restored, (as I have heretofore sayd in the tenth booke treating of wounds of Gunshot) and wee must then cease when we see heate and rednesse in the skinn, for feare of resolving that wee have already drawne, and by consequent make it become more leane. As for the Ulcer which he had upon his rumpe, which came through too long lying upon it without being remooved, which was the cause that the spirits could not flourish or shine in it; by the meanes of which there should bee inflammation, aposteme and then ulcer, yea with losse of substance of the subje& flesh, with a very great paine; because of the nerves which are disseminated in this part. That wee must likewise put him into another soft bed, and give him a cleane shirt, and sheets; otherwise all that wee could doe would serve for nothing, because that those excrements and vapors of the matter retained so long in his bed, are drawne in by the Systole and Diastole of the Arteries which are disseminated through the skin, and cause the spirits to change and acquire an ill quality and corruption, which is seene in some that shall lye in a bed where one hath sweate for the Pox, who will get the Pox by the putrid vapours which shall remaine soaked in the sheets and coverlets. Now the cause why he could in no wise sleepe, and was as it were in a consumption, was because he ate little, and did not doe any exercise, and because hee was grieved with extreame paine. For there is nothing that abateth so much the strength as paine. The cause why his tongue was dry and fowle, was through the vehemence of the heate of the feaver, by the vapors which ascended through the whole body to the mouth. For as we say in a common proverbe, when an Oven is well heate, the throate fees it. Having discoursed of the causes and accidents, I sayd they must be cured by their contraries, and first we must appease the paine, making apertions in the thigh to evacuate the matter retained, not evacuating all at a time for feare least by a sodaine great evacuation there might happen a great decay of spirits, which might much weaken the patient and shorten his dayes. Secondly, to looke unto the great swelling and cold in his Legge, fearing least it should fall into a Gangrene; and that actuall heate must bee applyed unto him because the potentiall could not reduce the intemperature, *de potentia ad actum*; for this cause hot brickettes must bee applyed round about, on which should bee cast a decoction of nervall hearbes boyled in wine and Vinegar, then wrapt up in some napkin, and to the feete an earthen bottle filled with the sayd decoction, stopp and wrapt up with some linnen clothes; also that fomentations much be made upon the thigh, and the whole

Legge,

Legge, of a decoction made of Sage, Rosemary, Time, Lavender, flowers of Camomile, melilot, and red Roses boyled in white wine, and a *Lixivium* made with oake ashes with a little Vinegar, and halfe an handfull of salt. This decoction hath vertue to attenuate, incise, resolve and drye the grosse viscous humor. The sayd fomentations must bee used a long while, to the end there may bee a greater resolution; for being so done a long time together, more is resolved than attracted, because the humor contained in the part is liquified, the skin and the flesh of the muscles is rarified. Thirdly, that there must be applyed upon the rumpe a great emplaster made of the red desiccative and *Unguentum Comitissa* of each equall parts incorporated together, to the end to appease his paine and dry up the Vicer, also to make him a little downe pillow which might beare his rumpe aloft without leaning upon it. Fourthly to refresh the heate of his kidneys one should apply the unguent called *Refrigerans Galeni* freshly made, and upon that the leaves of water Lillies. Then a napkin dipt in *Oxycrate*, wrung out and often renewed: and for the corroboration and strengthening of his heart a refreshing medicine should bee applyed made with oyle of *nenuphar*, and unguent of Roses and a little saffron dissolved in Rose Vinegar, and Treacle spread upon a peece of Scarlet: For the *Syncope* which proceded from the debilitation of the naturall strength troubling the braine. Also he must use good nourishment full of juice, as ere egges, Damaske prunes stewed in wine and sugar, also *Panado* made with the broth of the great pot (of which I have already spoken) with the white fleshy parts of Capons, and Partridge wings minced small, and other rostmeate easie of digestion, as Veale, Goate, Pigeon, Partridge, and the like. The sauce should be Orenge, Verjuice, Sorrell, sharpe Pomegranets; and that he should likewise eate of them boyled with good hearbes; as Sorrell, Lettice, Purslan, Succory, Buglosse, Marygolds, and other the like. At night hee might use cleansed barley with juice of *Nenuphar* and Sorrell, of each two ounces, with five or six graines of *Opium* and of the foure cold seedes bruised, of each halfe an ounce, which is a remedy nourishing and medicinall, which will provoke him to sleepe: that his bread should be of Meslin, neither too new nor too stale; and for the great paine of his head, his haire must be cut, and rub his head with *Oxirrhodium* luke warme, and leave a double cloth wet therein upon it; likewise should be made for him a frontall of oyle of Roses, *Nenuphar*, Poppies, and a little *opium* and Rose Vinegar, and a little Campher and to renew it sometimes. Moreover one should cause him to smell to the flowers of Henbane and *Nenuphar* bruised with Viniger Rosewater, and a little campher wrapped in a handkercher, which shall be often and a long time held to his nose to the end that the smell may be communicated to the braine, and these things to be continued till that the great inflammation and paine be past, for feare of cooling the braine too much. Besides, one may cause it to raine artificially in powring downe from some high place into a kettle, and that it make such a noyse that the patient may heare it, by these meanes sleepe shall be provoked on him. And as for the retraction of his Legge that there was hope to redresse it, when evacuation was made of the matter and other humors contained in the thigh, which by their extention (made by repletion) have drawne backe the Leg, which might be remedied in rubbing the whole joynt of the knee with *Unguentum Dialthea* and oyle of Lillies, and a little *aqua vita*, and upon it to be laid, blacke wooll with the grease thereof. Likewise putting in the hamme a feather-pillow foulded in double, and by little and little to make his Leg to stretch out. All which my discourse was well approoved of by the Physitions and Chirurgions: the consultation ended wee went to the sicke patient, and I made him three apertions in his thigh, from whence issued out great quantity of matter and *Sanies*; and at the same time I drew out some scales of bones, nor would I let out too much abundance of the said matter for feare of too much decaying his strength: Then two or three houres after I caused a bed to bee made neare his owne, where there were cleane white sheets then a strong man lifted him into it, and rejoyced much in that hee was taken out of his foule stinking bed. Soone after hee demanded to sleepe, which hee did almost foure houres, where all the people of the house began to rejoyce, cheefely Monsieur the Duke of Ascot his brother.

The dayes following I made injections into the bottome and cavities of the Ulcer, made with *Aegyptiacum*, dissolved sometimes in *aqua vite*, and sometimes in wine. I applied to mundifie and dry the spongie and loose flesh, bolsters, at the bottome of the sinuosityes hollow tents of Lead, that the *Sanies* might have passage out; and upon it a great Emplaster of *Diacalcitheas* dissolved in wine: likewise I did rowle it with such dexterity, that he had no paine, which being appeased the fever began much to diminish. Then I made him drinke wine moderately allayed with water, knowing that it restores and quickens the spirits: and all the things which we rested on in the consultation were accomplit, according to time, and order: and his paines and fever ceased, he began to grow better, and discharged two of his Chirurgions, and one of his Physitions, so that we were but three with him. Now I remained there about two monethes, which was not without seeing divers sicke people, as well rich as poore which came to me three or foure leagues about. They gave meate and drinke to the needy, all which he recommended to me, and prayed me also for his sake to helpe them. I protest I did not refuse any one, and did to them what I possibly could, whereof he was joyfull. Then when I saw he began to mend, I told him hee must have a consort of Violons & a jester to make him merry, which he did: in one moneth we so wrought, that he could hold himselfe up in a chaire, and made himselfe to be carried and walke in his garden, and at the gate of his Castle to see the people passe by. The Countrey people of two or three leagues about, knowing they could see him, came the feast day male and female, to sing and dance pell mell, in joy of his amendment, all being very glad to see him, which was not done without good laughing and drinking. He caus'd still a barrell of beere to be given them, and they dranke all merrily to his good health. And the Citizens of *Mont Hainaut* and other gentlemen neighbours came to see him in admiration, as a man coming from the tombe. And as soone as he began to mend, he was not without company, and as one went out another came in, to visite him: his table was alwayes well covered. Hee was greatly loved of the Nobility, and of the common people, as well for his liberality as by reason of his beauty, and honesty, having a pleasant looke and a gracious speech, insomuch that those that beheld his face were constrained to love him. The cheefe of the City of *Monts* came on Saturday to beseech him to permit mee to goe to *Monts*, where they had a great desire to feast, and make me good cheere for his sake. He told them he would pray me to goe there, which he did. But I made them answer that they should not doe me so much honour, as also that they could not give me better cheere than I had with him. And he prayed mee againe affectionately to goe thither, and that I should doe that for his sake, to which I agreed. The day after they fetcht me with two Coaches, and being arrived at *Monts* we found the dinner ready, and the cheefe of the City with their wives, stayed for mee with a good will. We went to the Table and they placed me at the upper end, and dranke all to me, and to the health of Monsieur *D'auret*, saying that he was very happy, and they likewise to have obtained me to take him in hand, for that they knew that in this company, he was greatly honoured and loved. After dinner they led mee backe to the Castle of *Auret*, where Monsieur the Marquesse stayd for me with great expectation to recount unto him, what we had done in our banquet, I told him that all the company had dranke divers times to his health: in 6 weekes he began to uphold himselfe a little with crutches, and to grow very fat and get a lively naturall colour. Now he had a desire to goe to *Beaumont* which is the dwelling place of Monsieur the Duke of *Ascot*, and made himselfe be carried in a great chaire with eight men by turnes, and the Country folkes where we passed along, knowing 'twas Monsieur the Marquesse fought and strove together who should carry him, and constrained us to drinke, but it was but Beere, but I beleeve had it beene Wine or Hippocras they would have given it us with a very good will, so much did they shew themselves joyfull to see the sayd Marquesse, and prayd all to God for him. Being arrived at *Beaumont* all the people came before us to doe him reverence, and prayed God to blesse him, and keepe him in good health. We entred into the Castle where there was more than 50 gentlemen which the Duke of *Ascot* had sent for to come make good cheere with his brother, who kept his table furnisht three dayes together. After dinner the
gentle-

gentlemen runne at the Ring, playd at Foyles, and rejoyced greatly to see Monsieur *Auret*, because they had heard he would never come out of his bed againe, or be cured of his hurt. I was alwayes at the upper end of the table, where every one dranke carouses to him, & me, thinking to make me foxt, which they could not do: for I drank but according to my old custome. A few dayes after wee returned backe and tooke leave of Madam the Dutchesse of *Ascot*, who tooke a Diamond ring from her finger which she gave me, acknowledging I had very well drest her brother; which Diamond was more worth than fifty Crownes. Monsieur *Auret* grew still better and better, and walked all alone round about his garden with crutches. I beg'd leave of him divers times, to come away to *Paris*, declaring that his Physition, and Chirurgion, would well doe the rest that remained, for the cure of his greefe. And now to begin a little to estrange my selfe from him, I prayd him to give me leave to goe see the Citty of *Antwerp*, which he willingly accorded to: and commanded his Steward to conduct me thither accompanied with two Pages: we passed through *Malignes* and *Bruxelle*, where the cheefe of the Citty prayed the sayd Steward, that at our returne they might heare of it; and that they had a great desire to feast me, as they of *Monts* had done. I thank't them most kindly, and told them that I was not worthy of such honour; I was two dayes and a halfe to see the Citty of *Antwerp*, where some Merchants knowing the Steward, prayd him to doe them the honour, that they might bestow a dinner or supper upon us. There was striving who should have us, and were all very joyfull to heare of the good health of the Marquesse of *Auret*, doing me more honour than I expected. To conclude, we came backe to the Marquesse making good cheere, and within five or sixe dayes I asked my leave of him, which he granted with great greefe, and gave me an honest Present, and of great valedue, and made me be conducted by the sayd master of his house and two Pages, even to my house at *Paris*.

I have forgot to tell you, that the *Spaniards* have since ruined, and demolisht his Castle of *Auret*, sack't, pillag'd, rifled and burnt all the houses, and Villages belonging unto him, because he would not be of their side, in the slaughters and ruines of the Low Countryes.

The Voyage of Bourges, 1562.

THe King with his Campe remained not long at *Bourges*, but those within yeelded it up, and went out with their jewells saved. I know nothing worthy of memory, but that a Boy of the Kings privie kitchin, who being neere the walls of the Citty before the composition was made, cryed with a loud voyce, *Huguenot, huguenot, shoot heere, shoote heere*, having his armes lifted up, and his hand stretched out; a souldier shot his hand quite through with a bullet: having received his stroake, he came and found me out to dresse him. My Lord high Constable, seeing the Boy to have his hand all bloody, and all rent and torne; demanded of him who had hurt him. Then there was a gentleman who saw the shot made, sayd it was well bestow'd because he cried, *Huguenot, shoot here, shoot here*. Then the sayd Lord Constable sayd this *Huguenot* was a good musketiere, and bare a pittifull mind, for it was very likely if he would have shot at his head, he might have done it more easily than in the hand. I drest'd the sayd Cooke who was very sicke, but at length was cured, but with lameness of his hand, and ever since his companions call him *Huguenot*; he is living.

The battell of Saint Denis, 1567.

And as for the battell of *Saint Denis*, there were divers slaine aswell on one side as on the other: ours being hurt, went backe to *Paris* to be drested together with the Prisoners who were taken, whereof I drested a great part. The King commanded me by the request of the Lady high Constable, to goe to her house to dresse my Lord, who had received a Pistoll shot in the middle of the spondills of his backe, whereby he presently lost all sence and motion of thighes and legges, with retention of

of excrements, nor being able to cast out his Urine, nor anything by the fundament, because that the spinal marrow, (from whence proceede the sinewes to give sense and motion to the inferiour parts.) was bruised, broken, and torne by the vehemence of the bullet. He likewise lost his reason, and understanding, and in a few dayes he dyed. The Chirurgions of *Paris* were a long time troubled to dresse the sayd wounded people, I beleeve (my little master) that you saw some of them. I beseech the great God of Victories, that we may never be employed in such evill encounters, and disasters.

The voyage of Bayonne, 1564.

NOW I say moreover, what I did in the voyage with the King to *Bayonne*, where we have beene two yeares and more to compasse all this Kingdome, where in divers Citties and Villages I have beene called into consultations for divers diseases, with the deceased Montieur *Chaplain* cheefe Phisition to the King, and Montieur *Chastellan* cheefe to the Queene Mother, a man of great honour and knowledge in Physicke and Chirurgery: making this voyage I was alwayes inquisitive of the Chirurgions if they had marked any rare thing of remarke in their practice, to the end to learne some new thing. Being at *Bayonne* there happened two things of remarke for the young Chirurgions. The first was, that I drest a *Spanish* Gentleman, who had a greivous great impostume in his throate: he came to have beene touched by the deceased King *Charles* for the Evill. I made incision in his Aposteme, where there was found great quantity of creeping wormes as bigge as the point of a spindle, having a blacke head; and there was great quantity of rotten flesh. Moreover there was under his tongue an impostume called *Ranula*, which hindred him to utter forth his words, and to eate and swallow his meate: he pray'd mee with his held up hands to open it for him if it could be done without perill of his person, which I immediately did, and found under my Lancet a solid body, which was five stones like those which are drawne from the bladder. The greatest was as big as an Almond and the other like little long Beanes, which were five in number; in this aposteme was contained a slimy humor of a yellow colour which was more than foure spoonefulls; I left him in the hands of a Chirurgion of the City to finish the cure.

Montieur *de Fontaine* Knight of the Kings Order, had a great continuall pestilent Feaver, accompanied with divers Carboncles in divers parts of his body, who was two dayes without ceasing to bleed at nose, nor could it be stancht; and by that meanes the feaver ceased with a very great sweat, and soone after the Charboncles ripened and were by me drested and by the grace of God cured.

I have published this Apologie to the end that each man may know, with what foot I have alwayes marched, and I thinke there is not any man so ticklish, which taketh not in good part what I have said, seeing my discourse is true, and that the effect sheweth the thing to the eye, reason being my warrant against all Calumnies.

The end of the Apologie and Voyages.

FINIS.

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A

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